



GAMMA RAY

5" = 100' FEET MD

COMPANY : ANADARKO E&P ONSHORE LLC
WELL : SPOTTED 4C-23HZ
FIELD : WATTENBURG
COUNTY : WELD
STATE : COLORADO
COUNTRY : U.S.A.
UWI : 05-123-39430

COMPANY : ANADARKO E&P ONSHORE LLC

WELL : SPOTTED 4C-23HZ

FIELD : WATTENBURG

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STATE : COLORADO

COUNTRY : U.S.A.

UWI : 05-123-39430

WELL LOCATION

LAT:40°7'1.758"N LONG:104°51'52.009"W
N:1286160.56 ft E:3177745.06 ft

SEC:23

TWP:2N

RANGE:67W

OTHER SERVICES

DIRECTIONAL

ROP

DEPTH REF. : RKB

REF. HEIGHT : 25.000 ft

RKB to Ground Level

GROUND LEVEL : 4966.000 ft

G.L. to MEAN SEA LEVEL

BOREHOLE RECORD

DEVIATION RECORD

HOLE SIZE in	FROM ft	TO ft	INCLINATION deg	FROM ft	TO ft
12.25	0	1248	0-10	0	6910
8.75	1248	7744	10-90	6910	7744
6.125	7744	12730	90-93	7744	12730

CASING RECORD

CASING SIZE in	FROM ft	TO ft
9.625	0	1248
7	0	7744
DRILLING CO. : H&P		
RIG : 311		
LWD UNIT NO. : C-46 DISTRICT : CASPER		
SPUD DATE : 06/10/2014		
LWD START DATE : 06/17/2014 DEPTH : 1378 ft		
LWD END DATE : 06/23/2014 DEPTH : 12730 ft		
TOTAL DEPTH : 12730 ft		

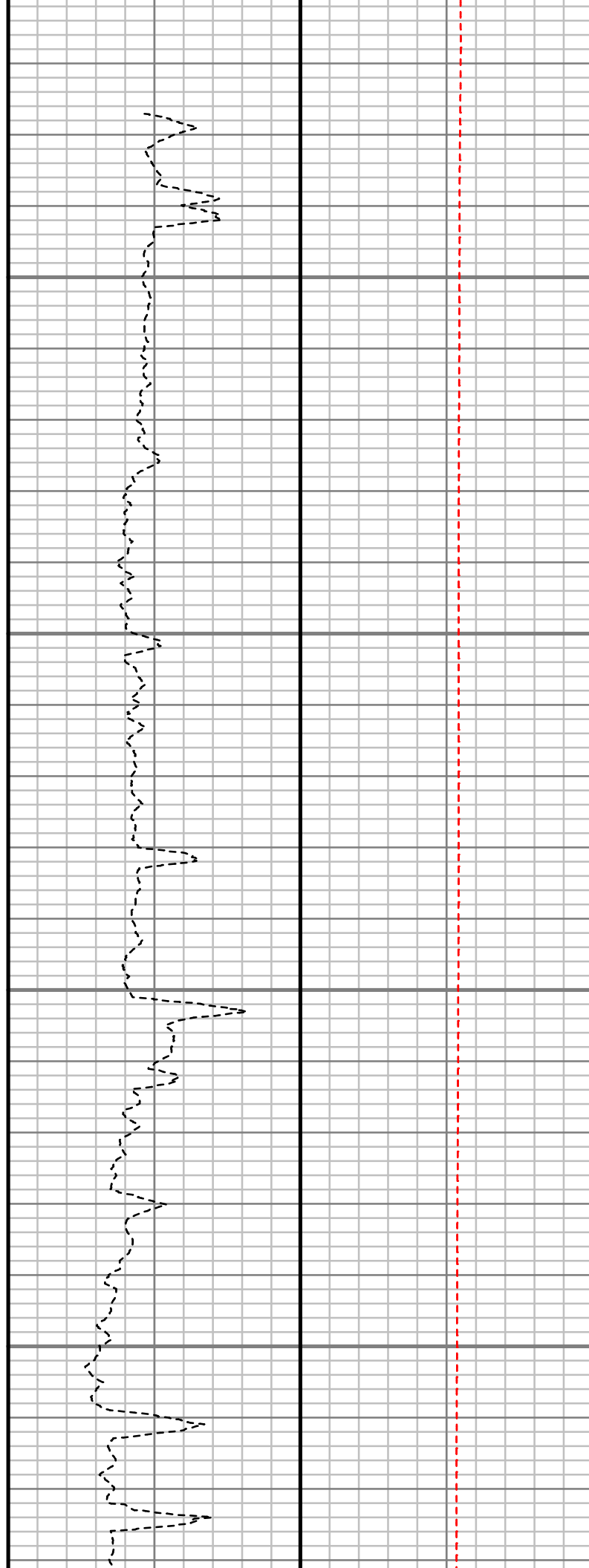
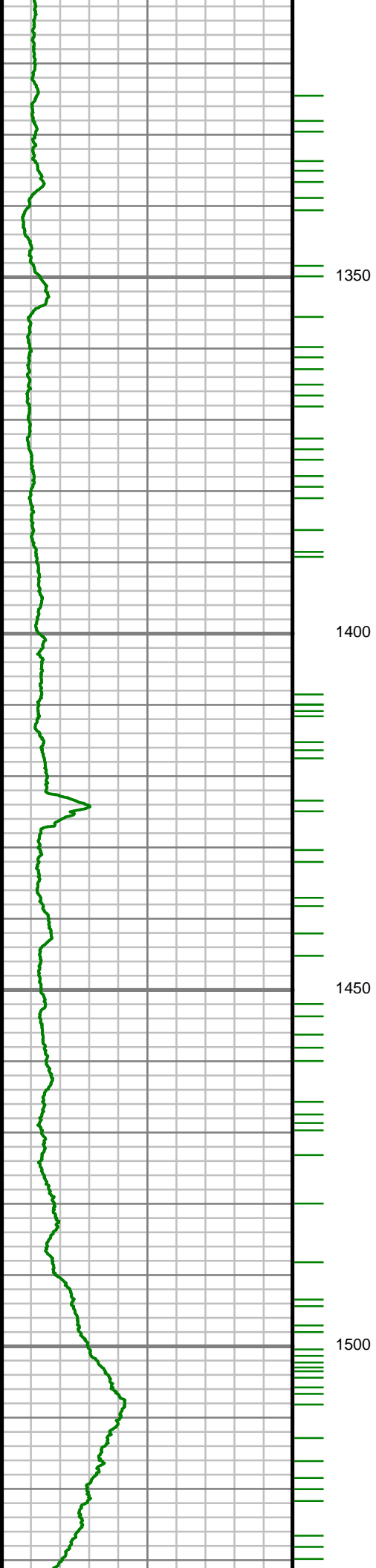
Run Data

RUN NUMBER	1	2
START DATE	06/17/2014	06/20/2014
START TIME	1530	1730
END DATE	06/20/2014	06/23/2014
END TIME	1730	0430
DEPTH IN (ft)	1430	7744
DEPTH OUT (ft)	7744	12730
LOG TOP (ft)	1378	7692
LOG BOTTOM (ft)	7692	12668
HOLE SIZE (in)	8.75	6.125
MUD DATA @ (ft)	1523	10790
MUD TYPE	WATER-BASED	WATER-BASED
DENSITY (lb / gal)	9.5	9.8
VISCOSITY (s / qt)	43	43
pH	10	17
FLUID LOSS (cm3 / 30)	-	-
SALINITY (ppm)	1900	9.2
Rm (ohmm @ deg F)	-	-
Rmf (ohmm @ deg F)	-	-
MAX TEMP (deg F)	146	236
Rm @ MAX TEMP (ohmm)	-	-
LWD ENGINEER #1	M. SHARKER	M. SHARKER
LWD ENGINEER #2	B. GREER	B. GREER
LWD ENGINEER #3	-	-
LOG WITNESS #1	J. STUART	J. STUART
LOG WITNESS #2	-	-

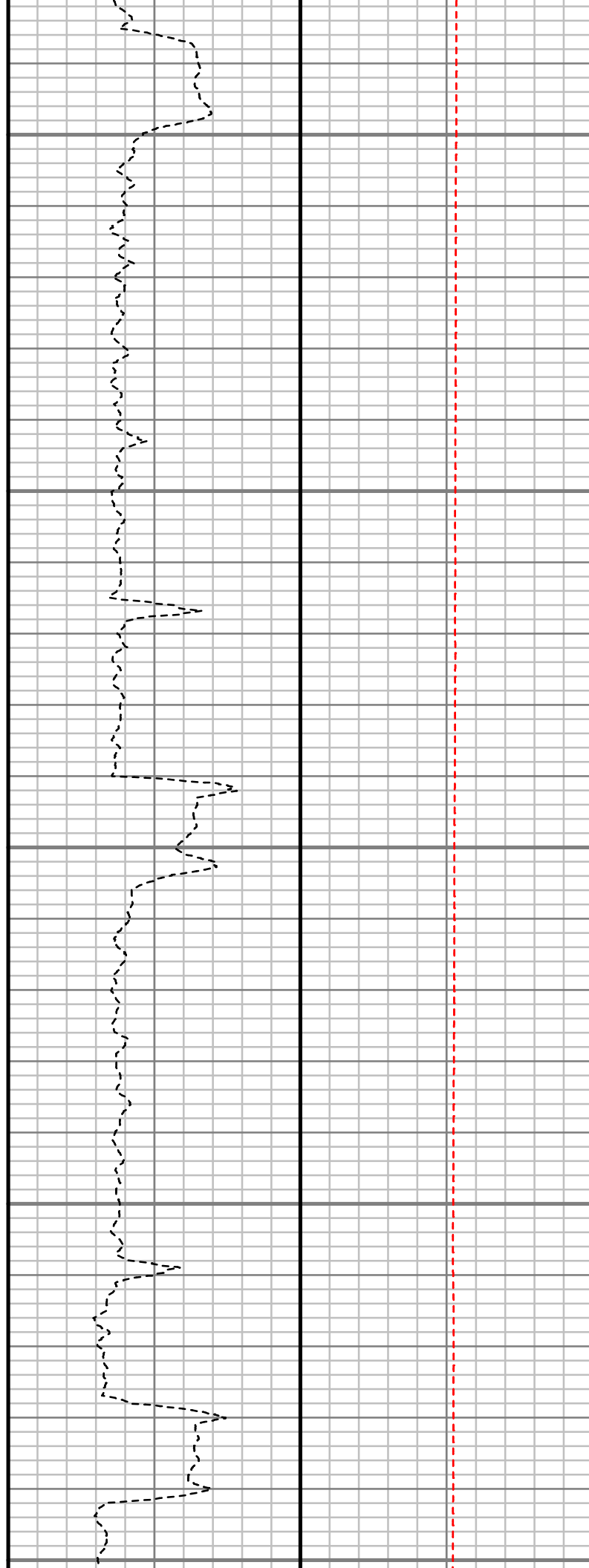
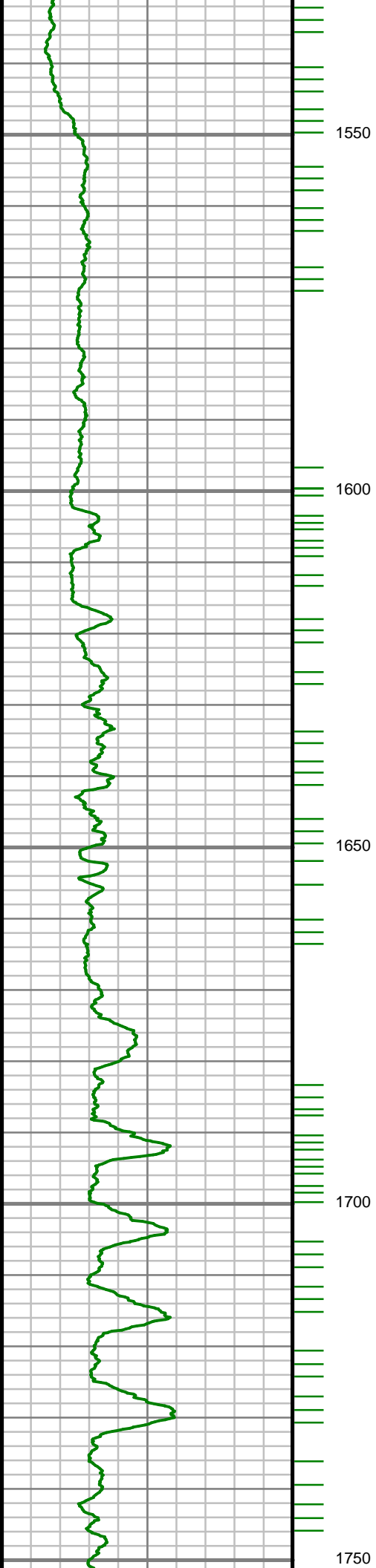
Remarks
ANADARKO E&P ONSHORE LLC PRODUCTION AFE# 2089199
SCIENTIFIC DRILLING INTERNATIONAL JOB# 164475
ALL REFERENCES IN THE DEPTH TRACK ARE AT BIT DEPTH.
ALL DATA IS MEMORY DATA UNLESS STATED OTHERWISE.
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO GAMMA RAY CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO RATE OF PENETRATION CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO TOOL TEMPERATURE CURVE
RUN #1: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSAR = 128-194 / CONT = 219 / EYE = 1001 / GAMMA RAY = 1154
BIT TO SENSOR OFFSETS: SURVEY = 52.43 FT. / GAMMA RAY = 43.18 FT.
RUN #2: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSAR = 78-108 / CONT = 590 / EYE = 185 / GAMMA RAY = 1031
BIT TO SENSOR OFFSETS: SURVEY = 60.19 FT. / GAMMA RAY = 50.94 FT.
SURVEY WELL NOTES:
SURVEYS FROM 0.0 FT. TO 1248 FT. WERE ACQUIRED BY MS GYRO MWD.
SURVEYS FROM 1248 FT. TO 12473 FT. WERE ACQUIRED BY SCIENTIFIC DRILLING INTERNATIONAL MWD.
MNEMONICS LIST:
GR = GAMMA RAY
ROP = RATE OF PENETRATION
T-TEMP = TOOL TEMPERATURE

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions as set out in our current price schedule.

ANADARKO E&P ONSHORE LLC SPOTTED 4C-23HZ WATTENBERG FIELD WELD COUNTY, COLORADO 05-123-39430			
MEASURED DEPTH 1:240 (ft)	Gamma Ray (GR) Unit = aapi	Rate of Penetration (ROP) Unit = ft/hr	Tool Temperature (T-TEMP) Unit = °F
0	0	0	0
1300	150	800	300

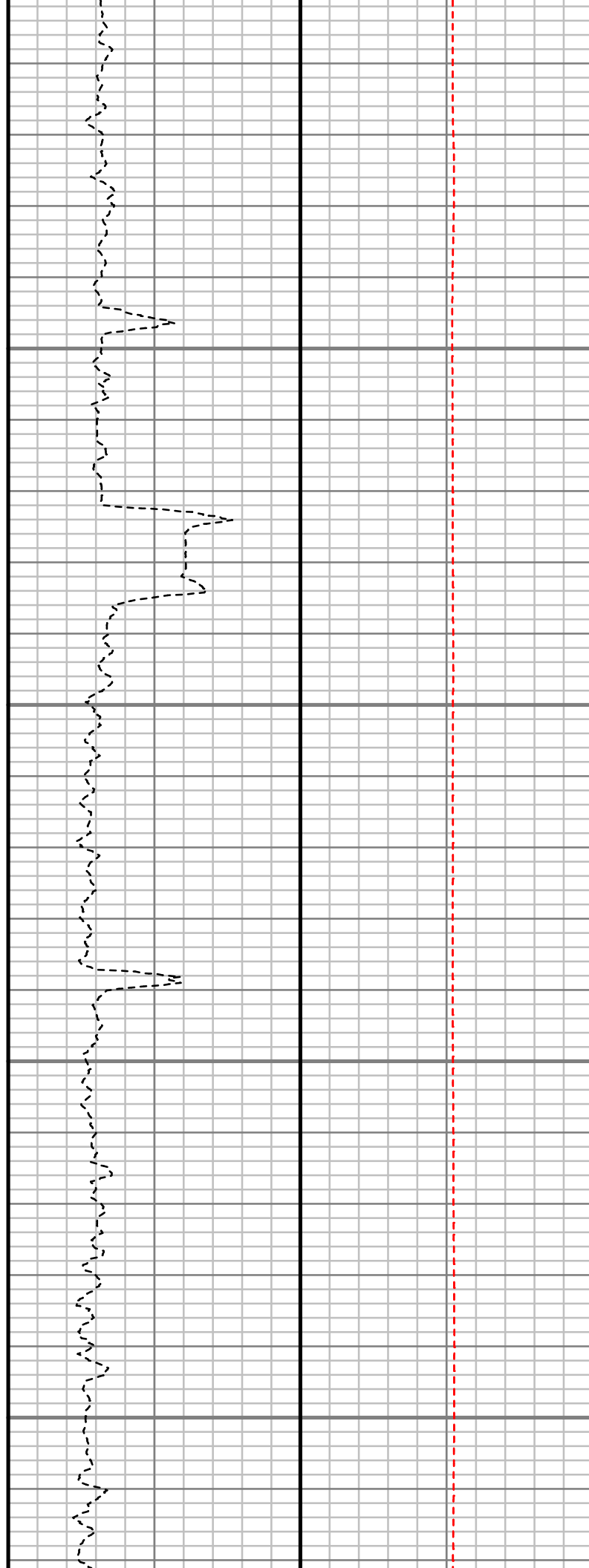
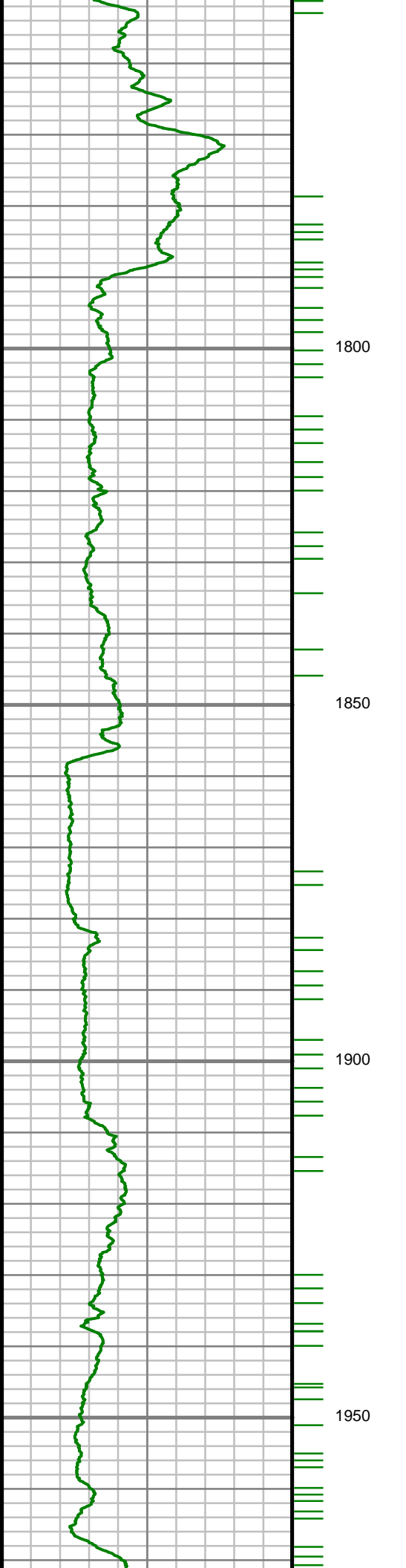


S: 14 MD: 1378.00 ft
Inc: 0.40 deg Az:
234.93 deg TVD:
1377.98 ft



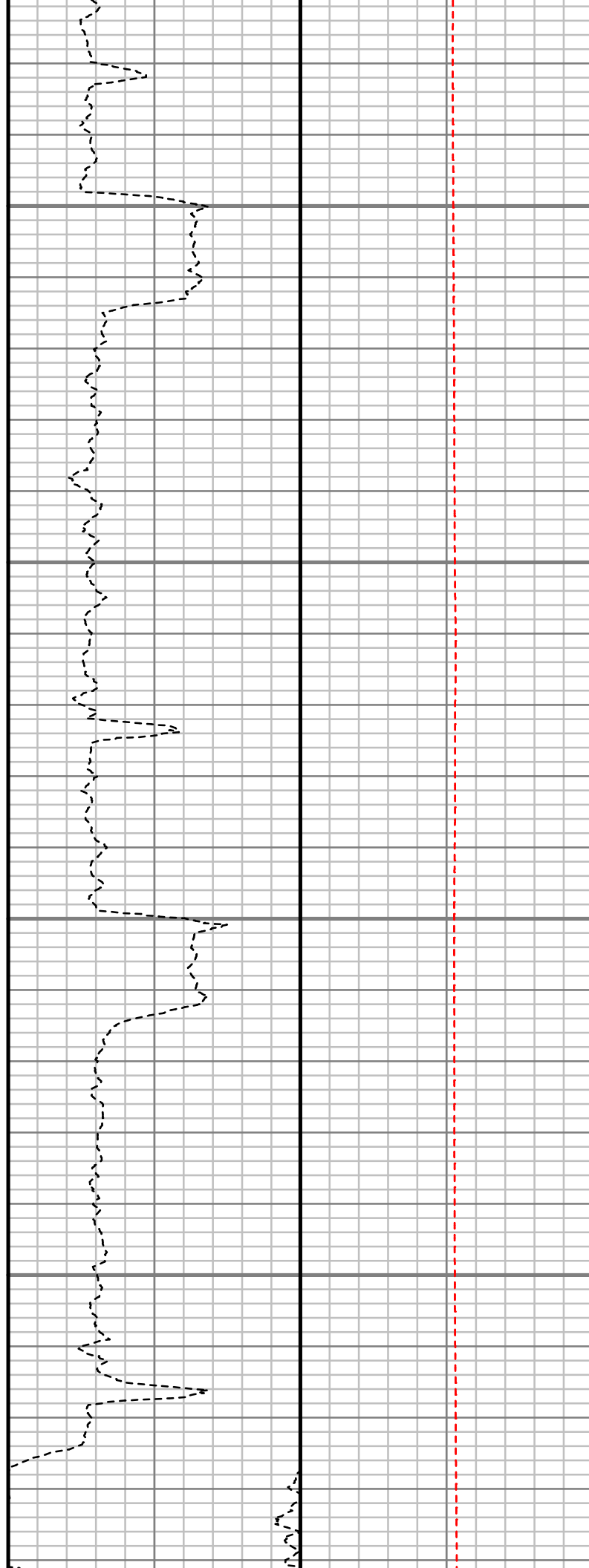
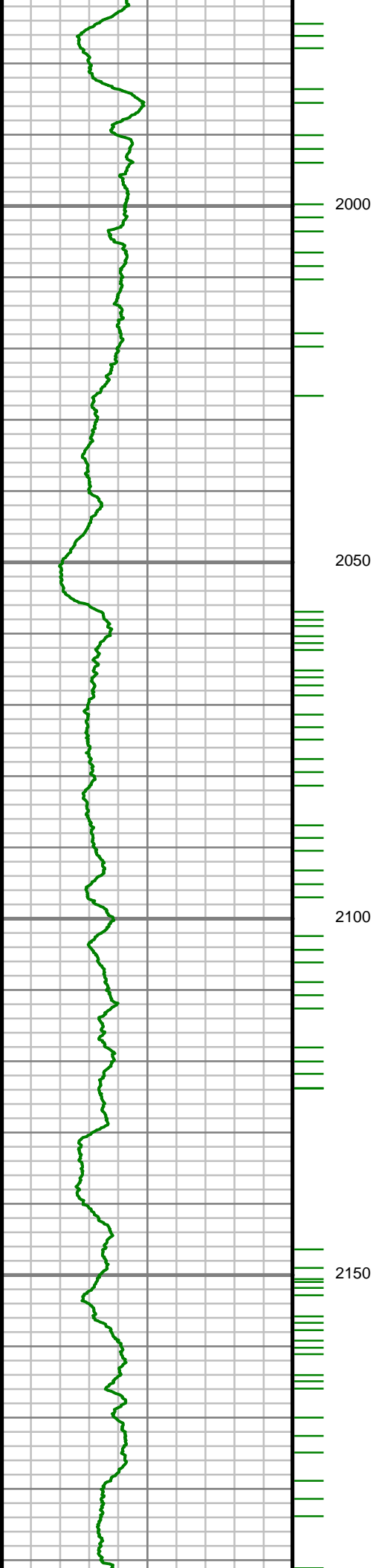
S: 15 MD: 1560.00 ft
Inc: 5.13 deg Az:
202.79 deg TVD:
1559.72 ft

S: 16 MD: 1744.00 ft
Inc: 8.59 deg Az:
198.28 deg TVD:

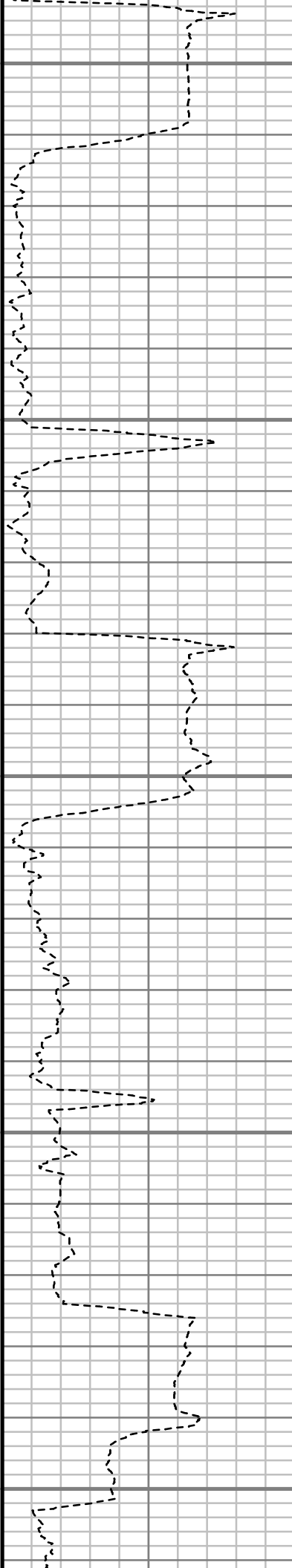
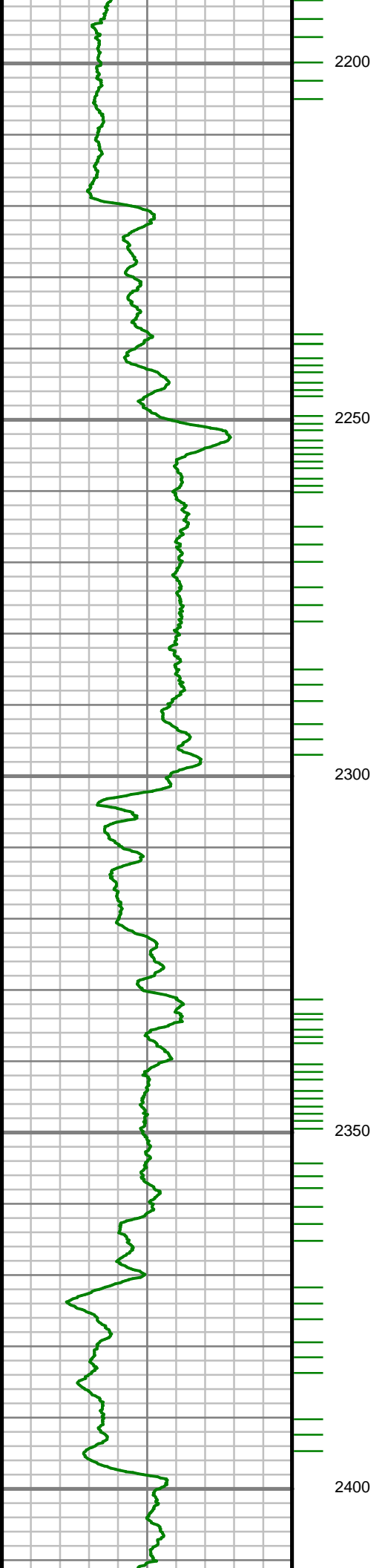


1742.37 ft

S: 17 MD: 1927.00 ft
Inc: 8.97 deg Az:
181.64 deg TVD:
1923.26 ft



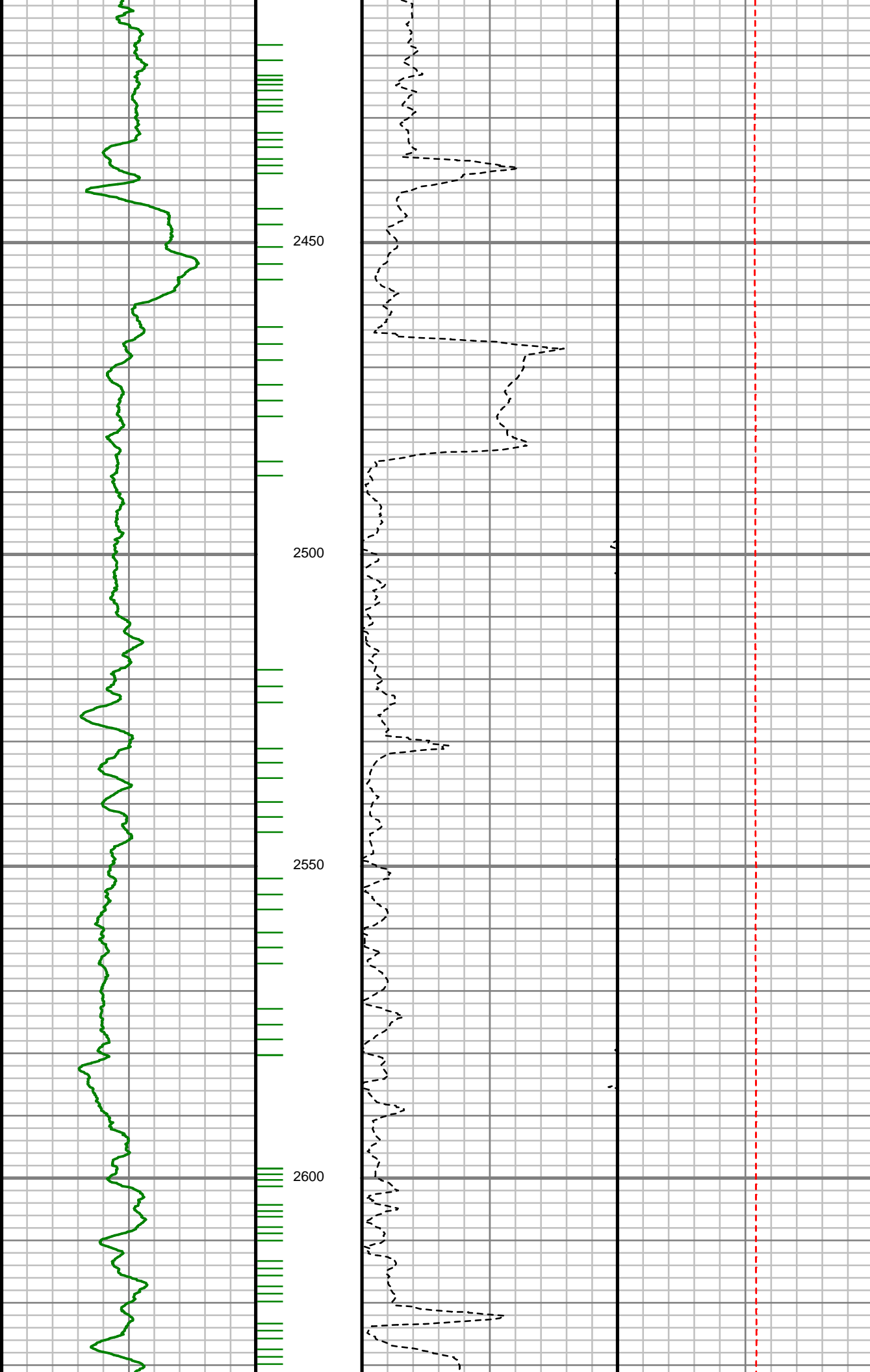
S: 18 MD: 2018.00 ft
Inc: 9.43 deg Az:
182.49 deg TVD:
2013.09 ft



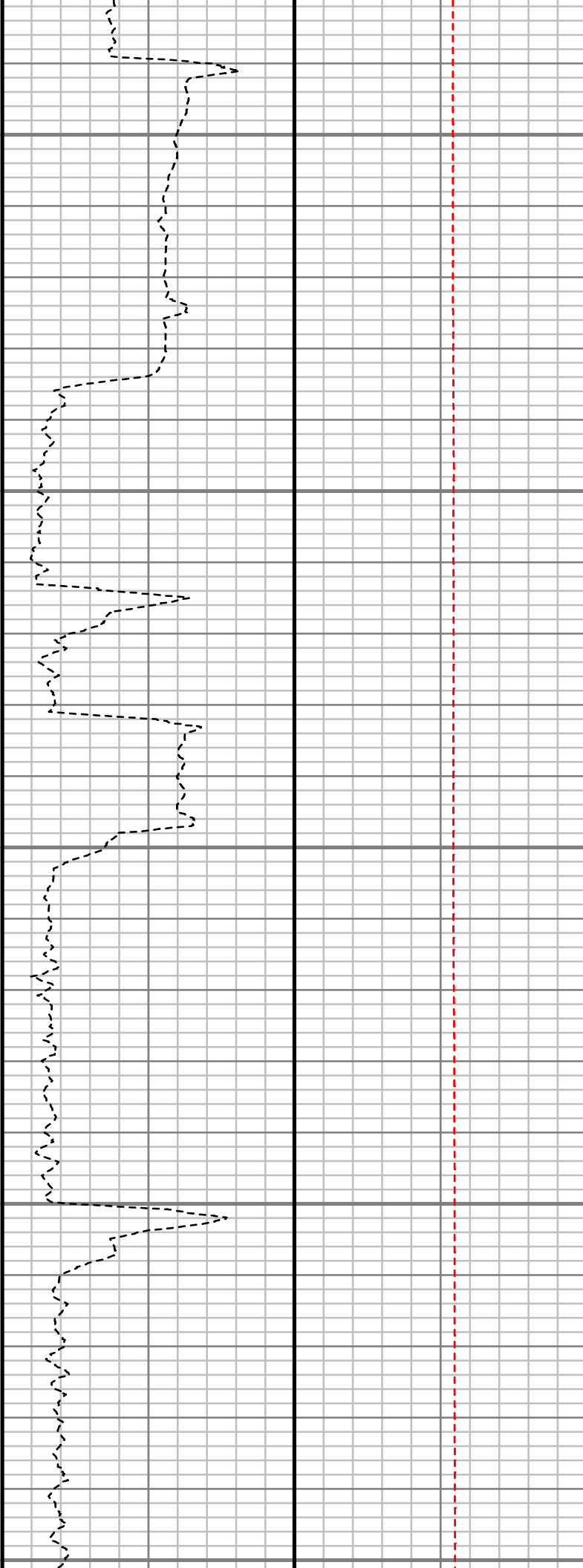
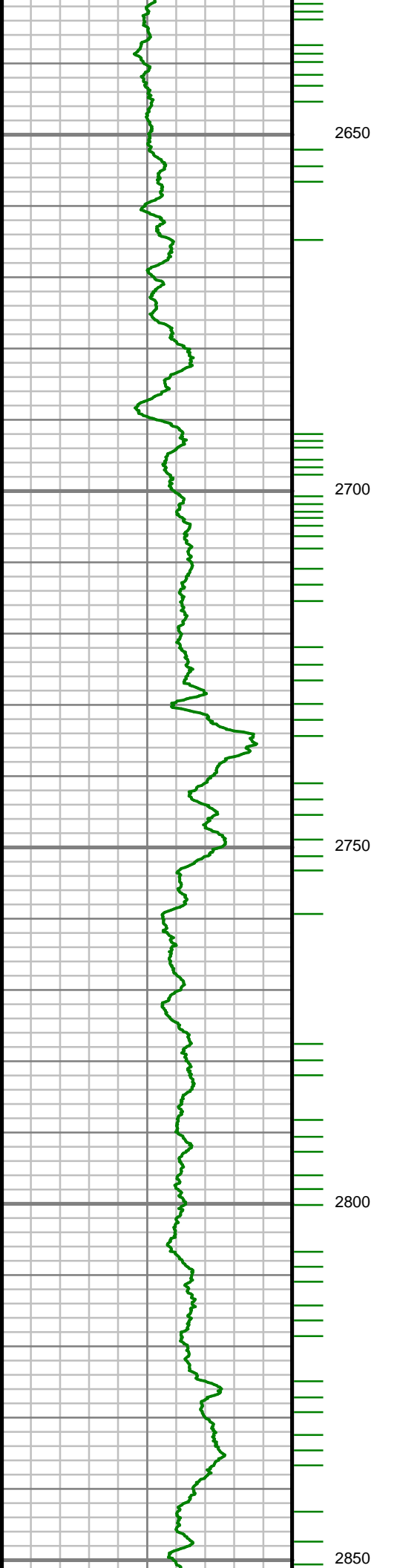
S: 19 MD: 2200.00 ft
Inc: 11.70 deg Az:
181.91 deg TVD:
2191.99 ft

S: 20 MD: 2292.00 ft
Inc: 12.99 deg Az:
186.14 deg TVD:
2281.86 ft

S: 21 MD: 2383.00 ft
Inc: 13.95 deg Az:
189.36 deg TVD:
2370.36 ft



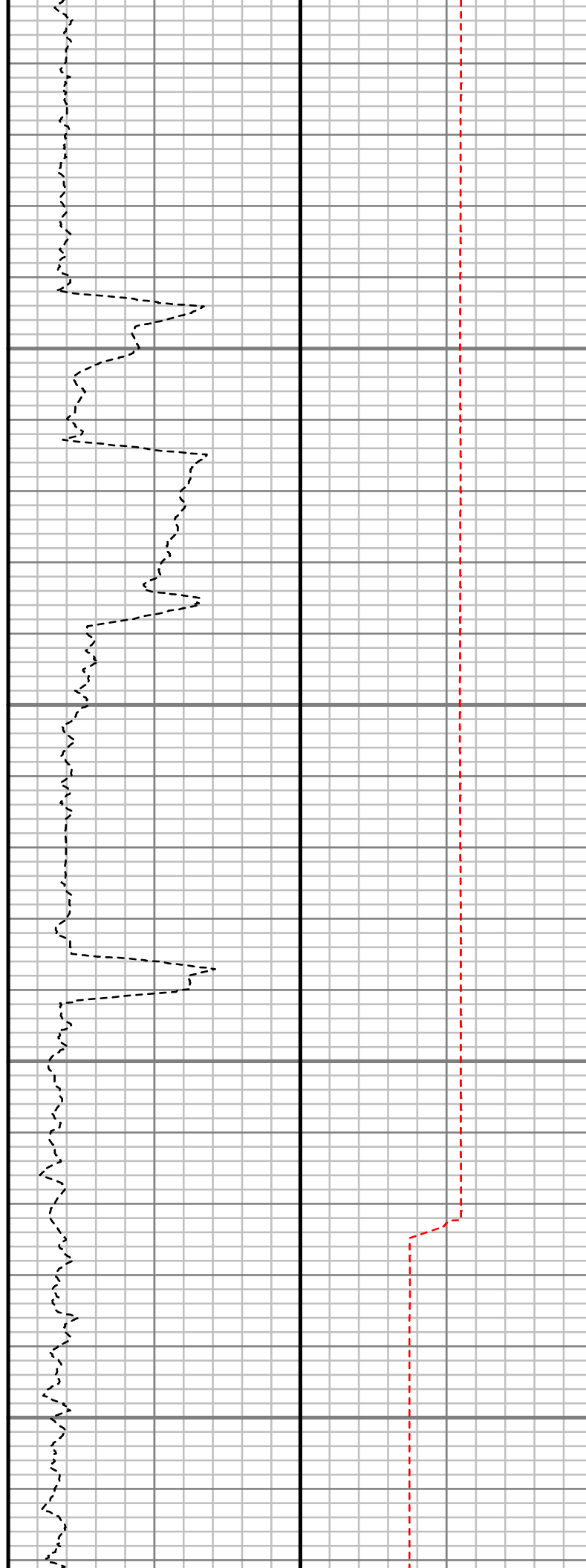
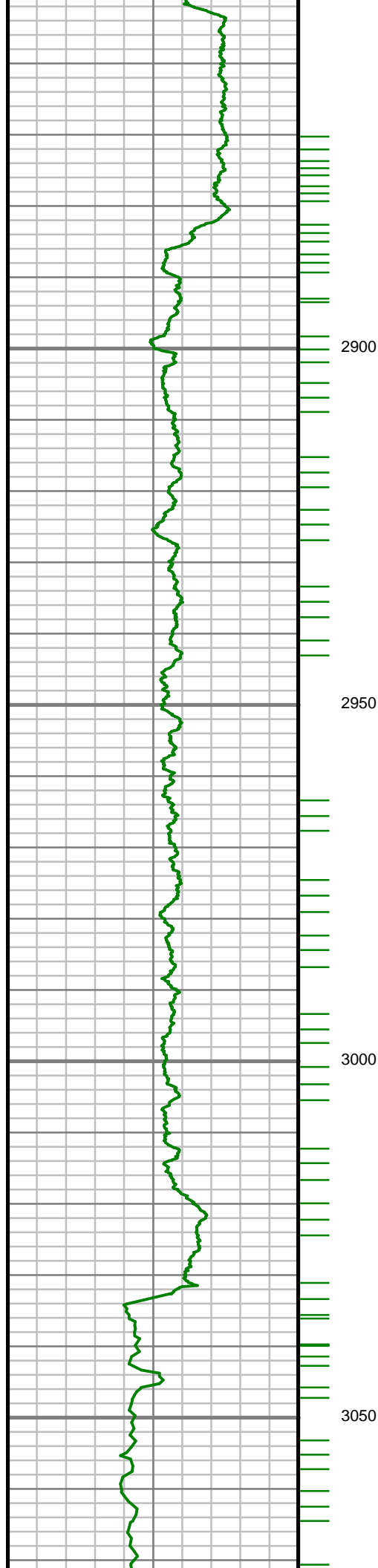
S: 22 MD: 2475.00 ft
Inc: 14.66 deg Az:
193.23 deg TVD:
2459.51 ft

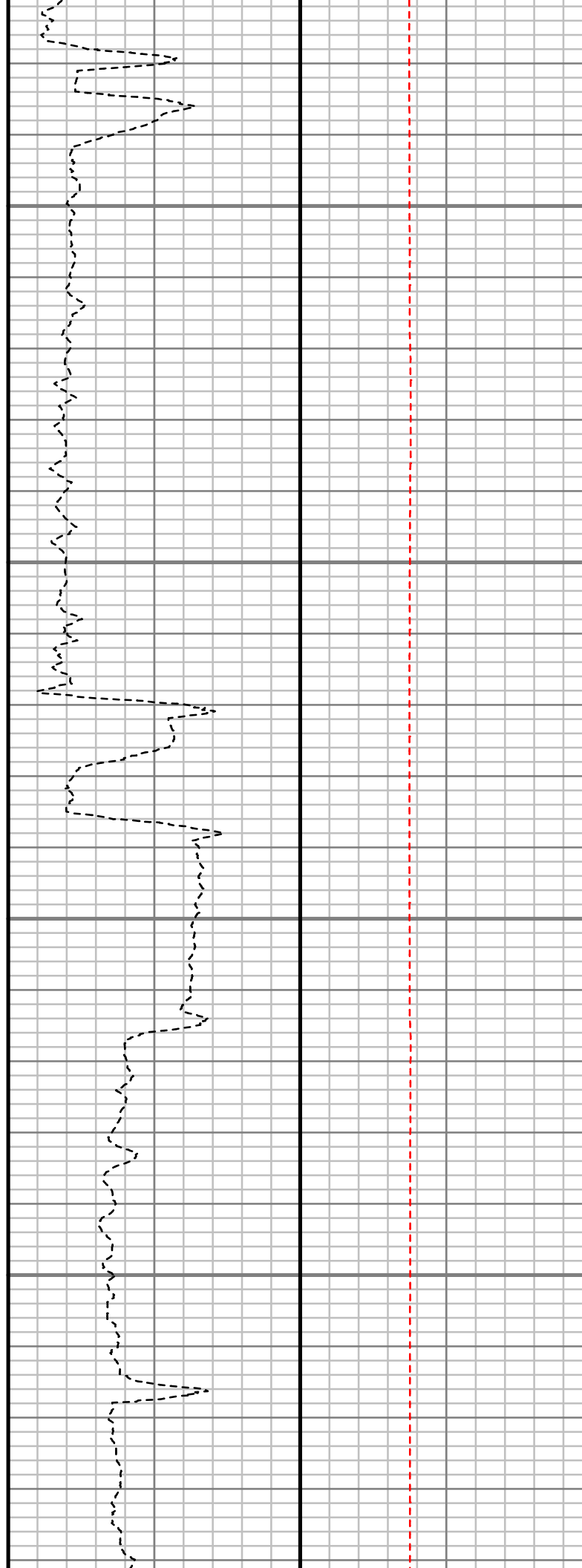
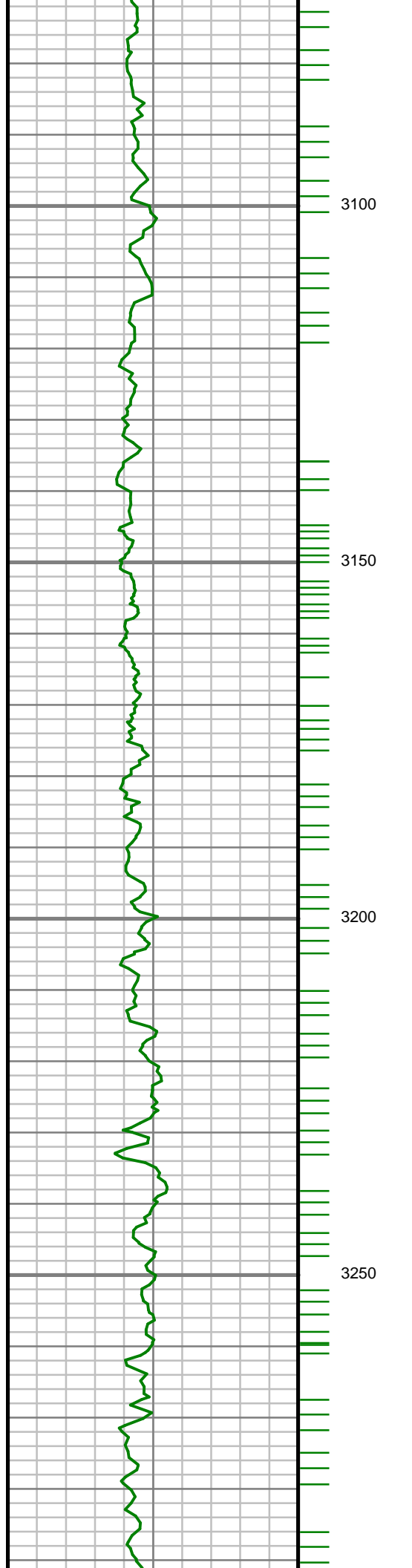


S: 23 MD: 2657.00 ft
Inc: 14.86 deg Az:
191.05 deg TVD:
2635.50 ft

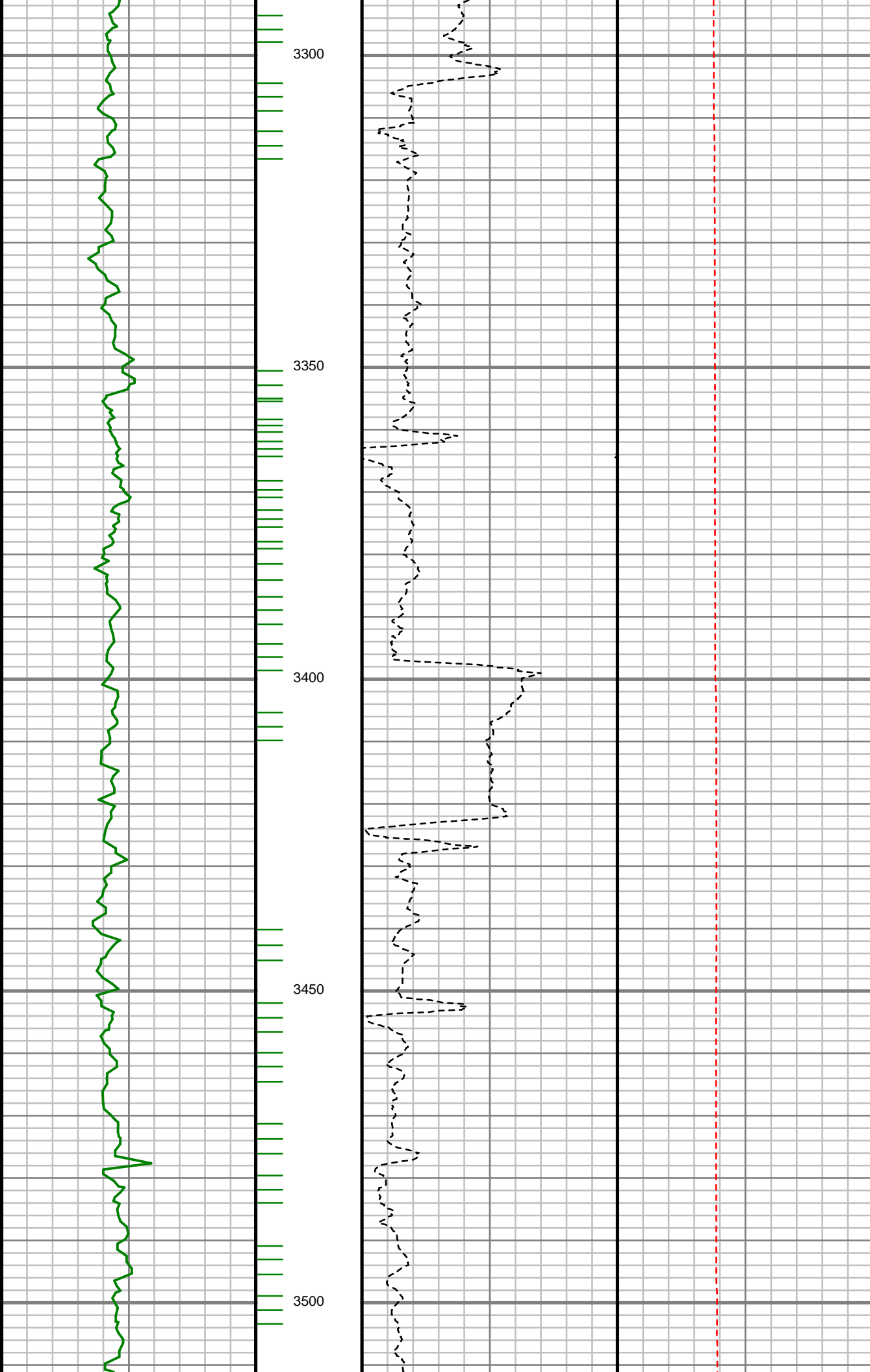
S: 24 MD: 2749.00 ft
Inc: 16.76 deg Az:
192.01 deg TVD:
2724.02 ft

S: 25 MD: 2841.00 ft
Inc: 14.84 deg Az:
190.07 deg TVD:
2812.54 ft

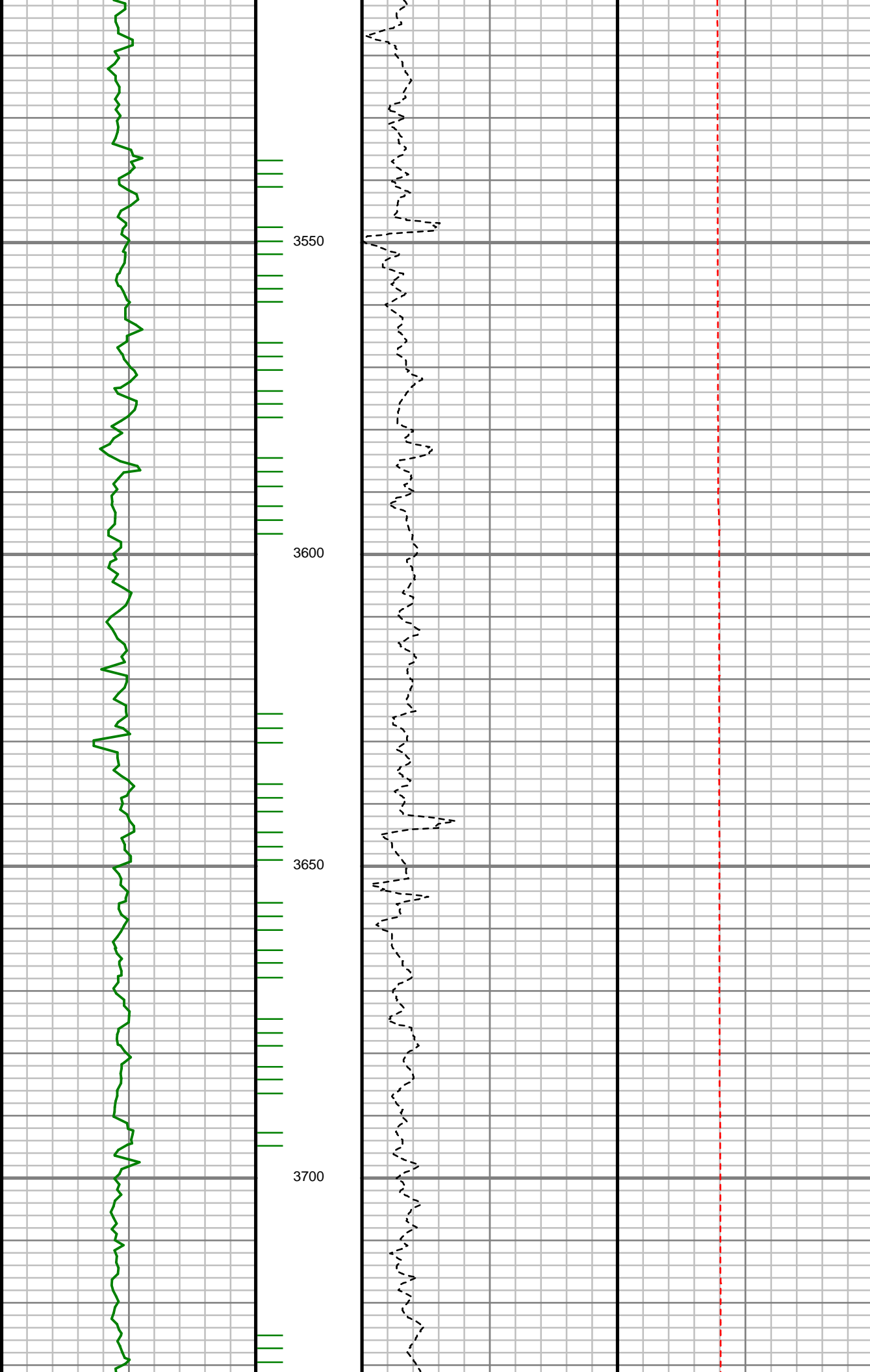




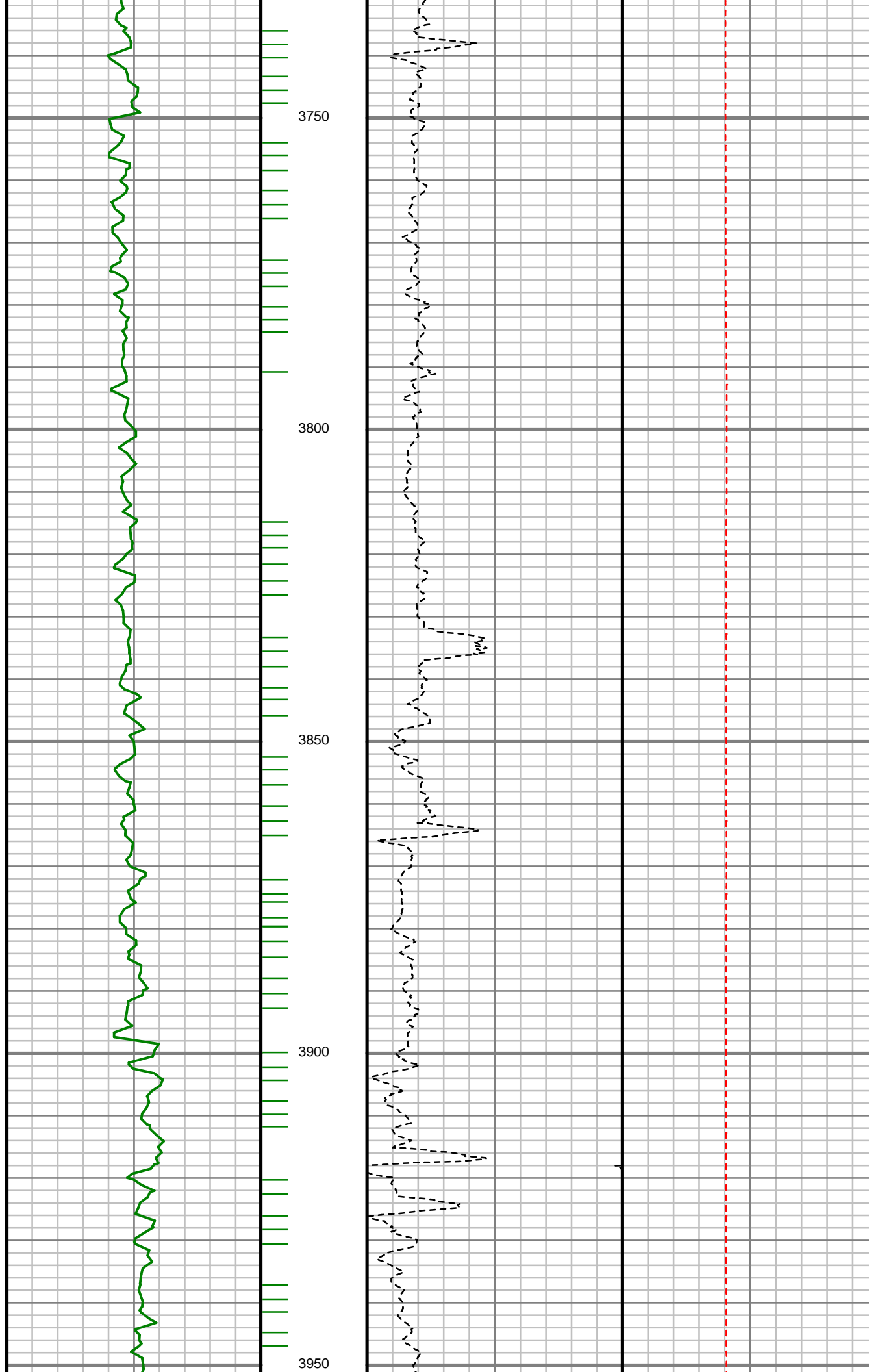
S: 26 MD: 3212.00 ft
Inc: 14.37 deg Az:
190.42 deg TVD:
3171.55 ft



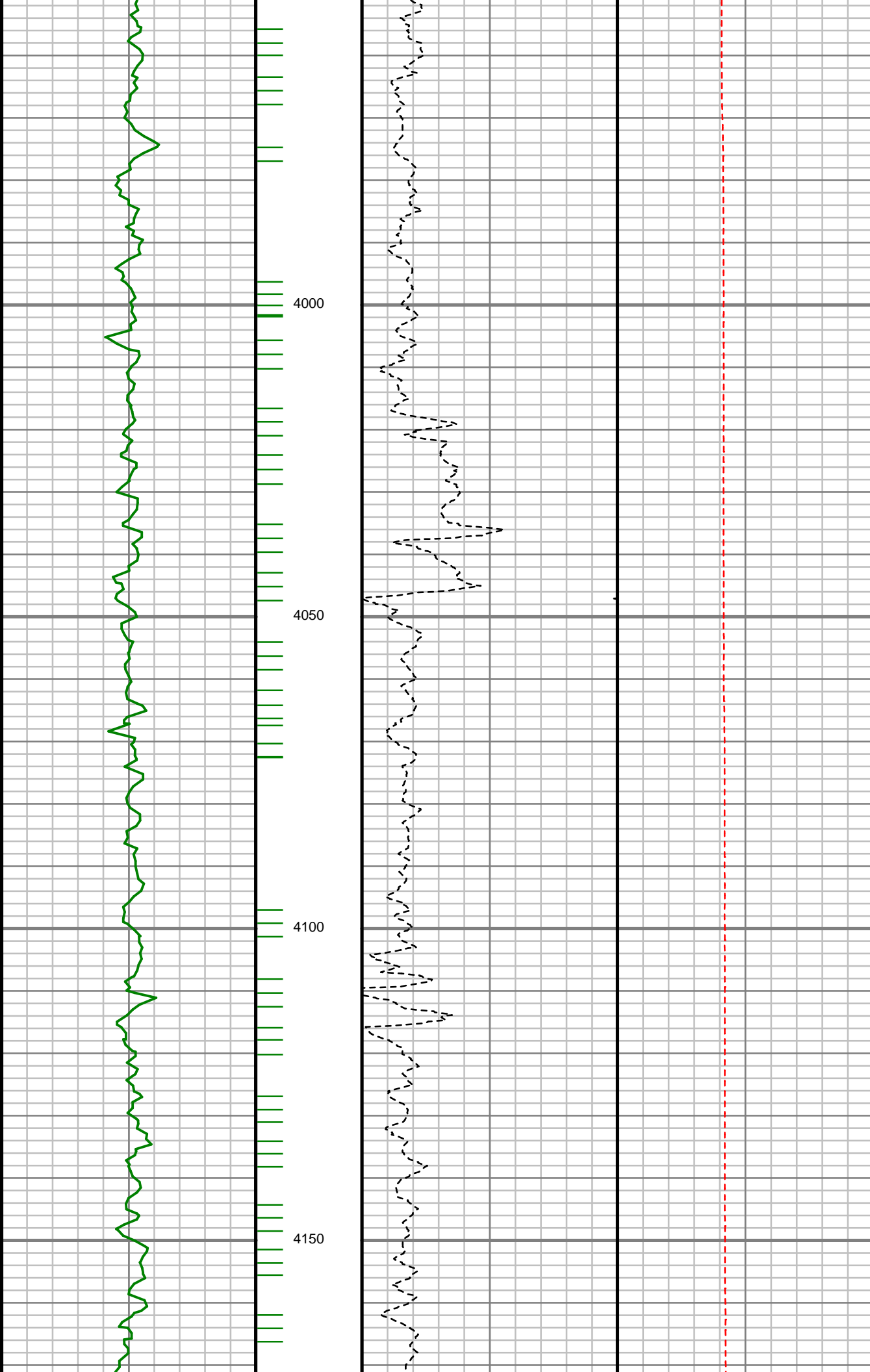
S: 27 MD: 3495.00 ft
Inc: 7.96 deg Az:
202.05 deg TVD:
3449.08 ft



S: 28 MD: 3589.00 ft
Inc: 5.70 deg Az:
203.45 deg TVD:
3542.41 ft



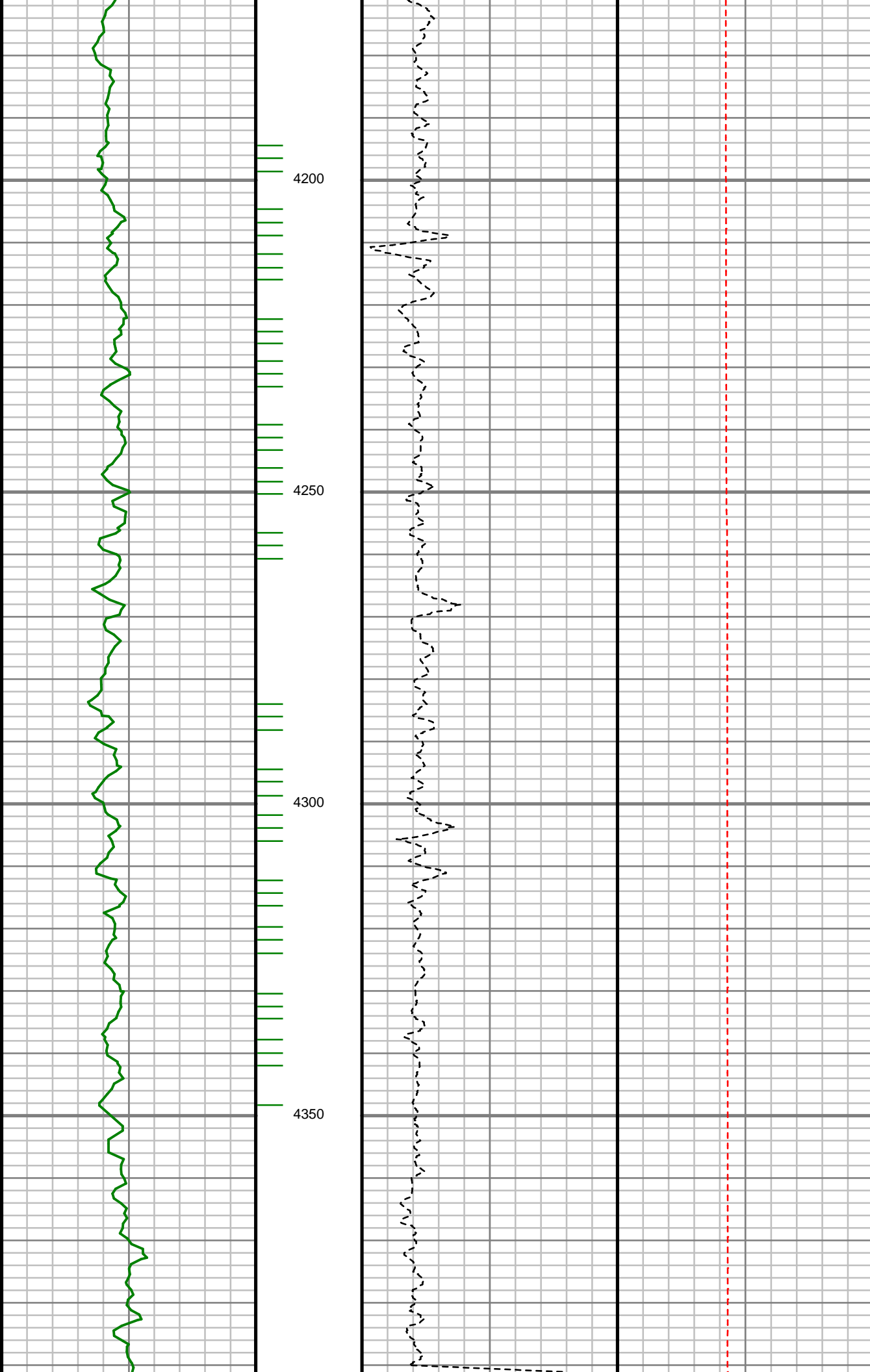
S: 29 MD: 3872.00 ft
Inc: 3.35 deg Az:
246.92 deg TVD:
3824.59 ft



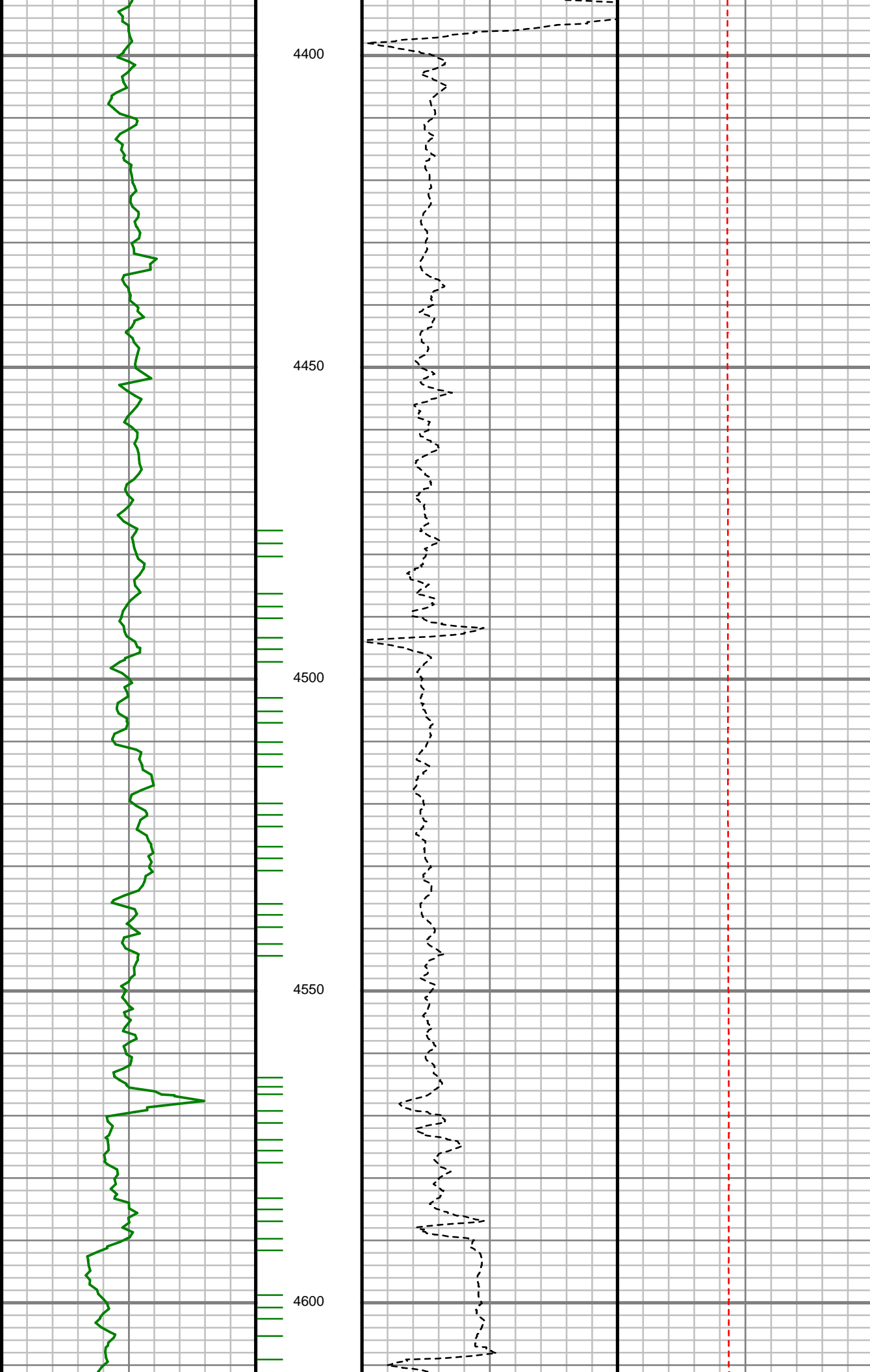
S: 30 MD: 3967.00 ft
Inc: 1.76 deg Az:
222.48 deg TVD:
3919.49 ft

S: 31 MD: 4061.00 ft
Inc: 0.88 deg Az:
189.16 deg TVD:
4013.47 ft

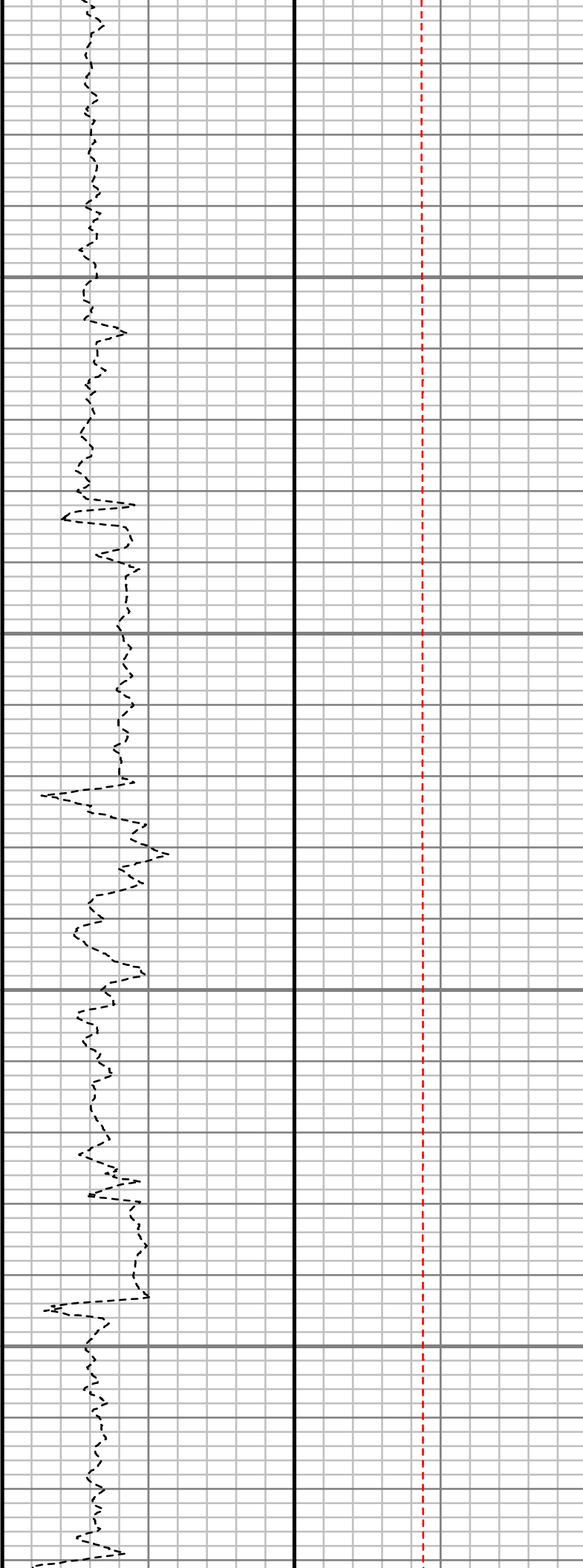
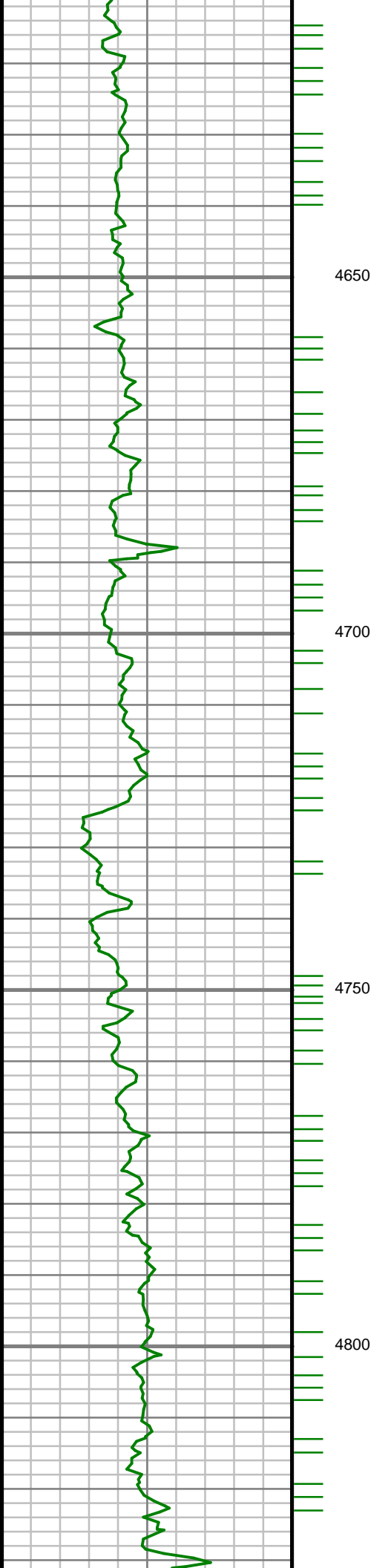
S: 32 MD: 4155.00 ft
Inc: 0.55 deg Az:
154.19 deg TVD:
4107.46 ft



S: 33 MD: 4249.00 ft
Inc: 0.50 deg Az:
176.55 deg TVD:
4201.45 ft

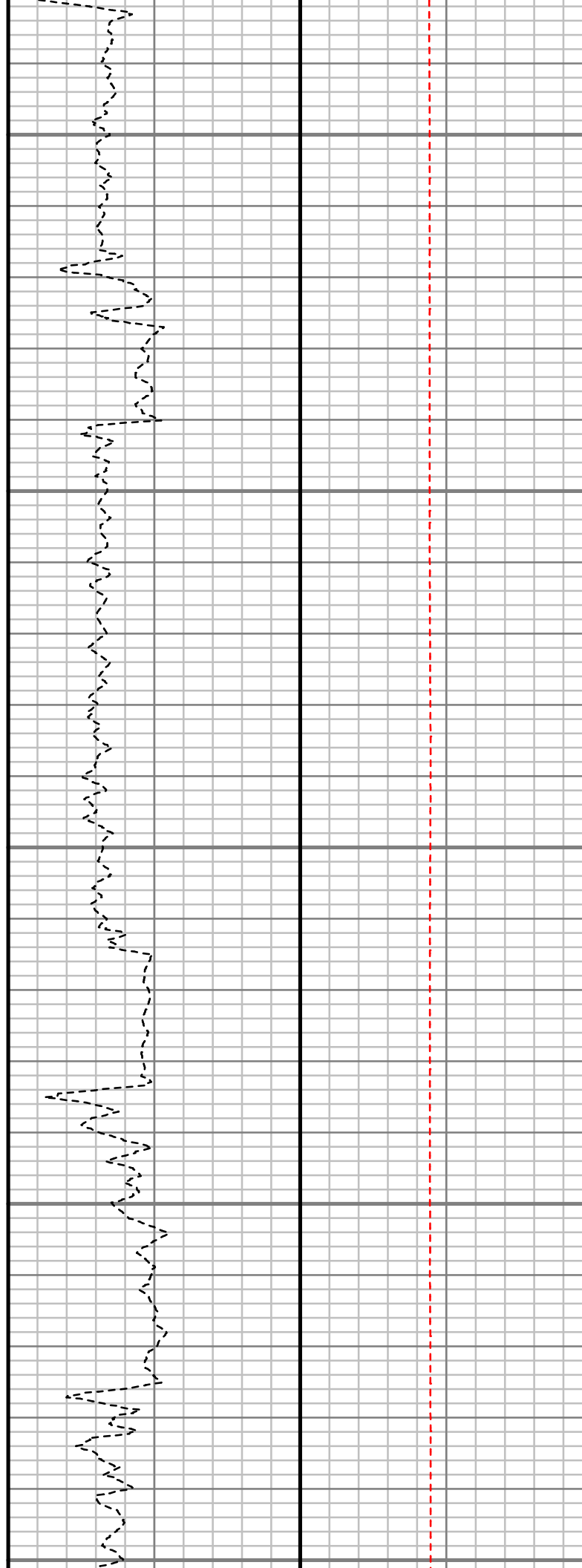
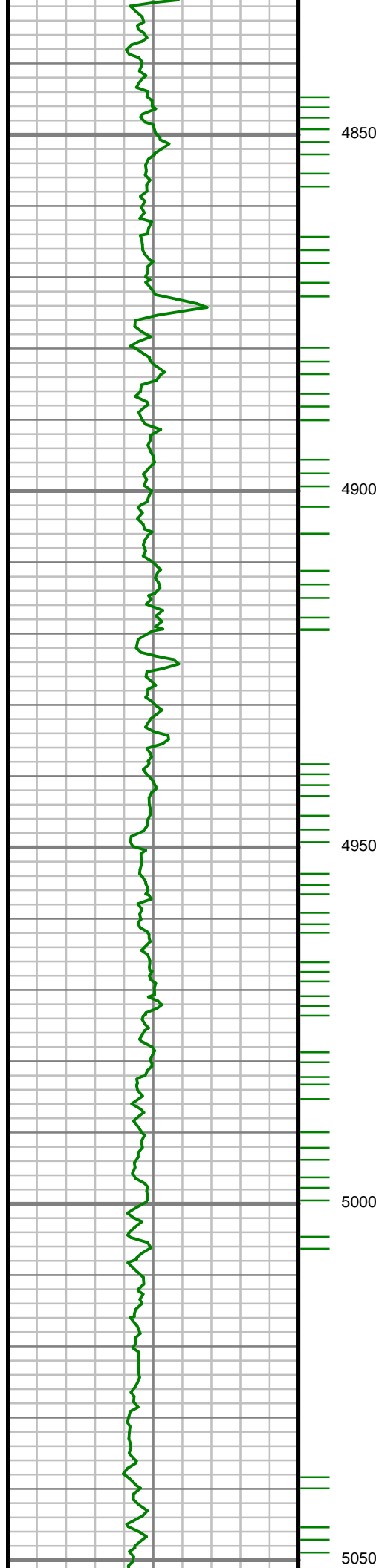


S: 34 MD: 4532.00 ft
Inc: 1.65 deg Az: 80.57
deg TVD: 4484.41 ft



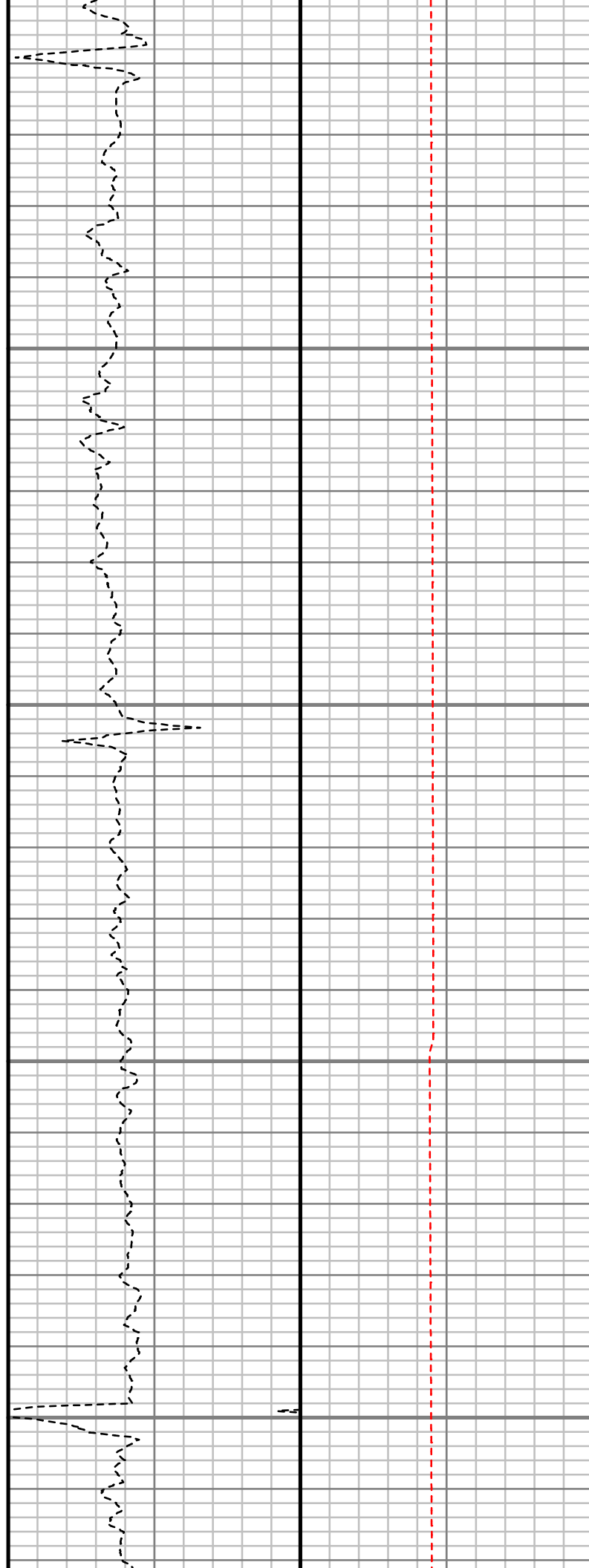
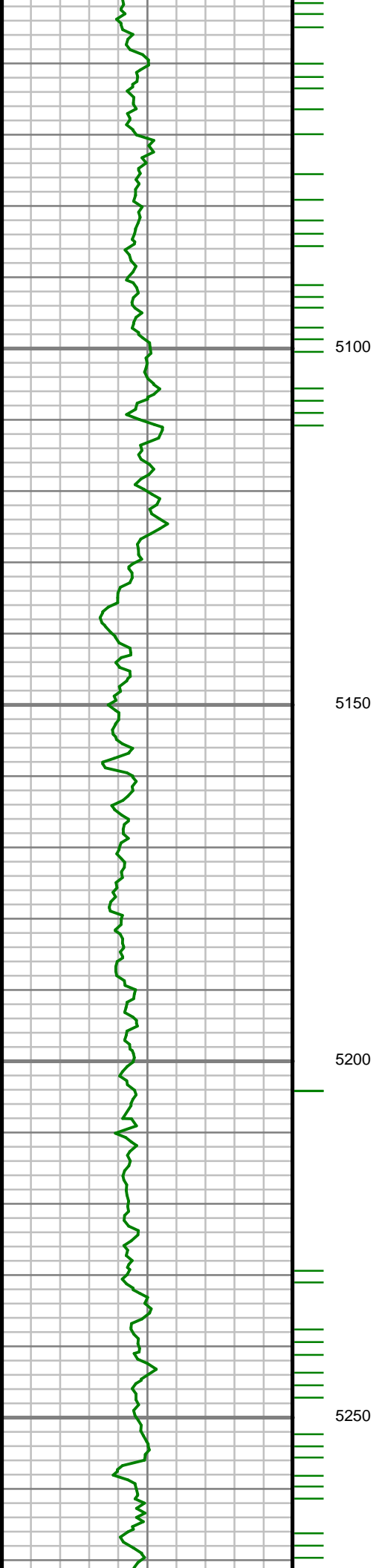
S: 35 MD: 4626.00 ft
Inc: 1.60 deg Az: 73.69
deg TVD: 4578.38 ft

S: 36 MD: 4815.00 ft
Inc: 2.28 deg Az: 61.26
deg TVD: 4767.27 ft

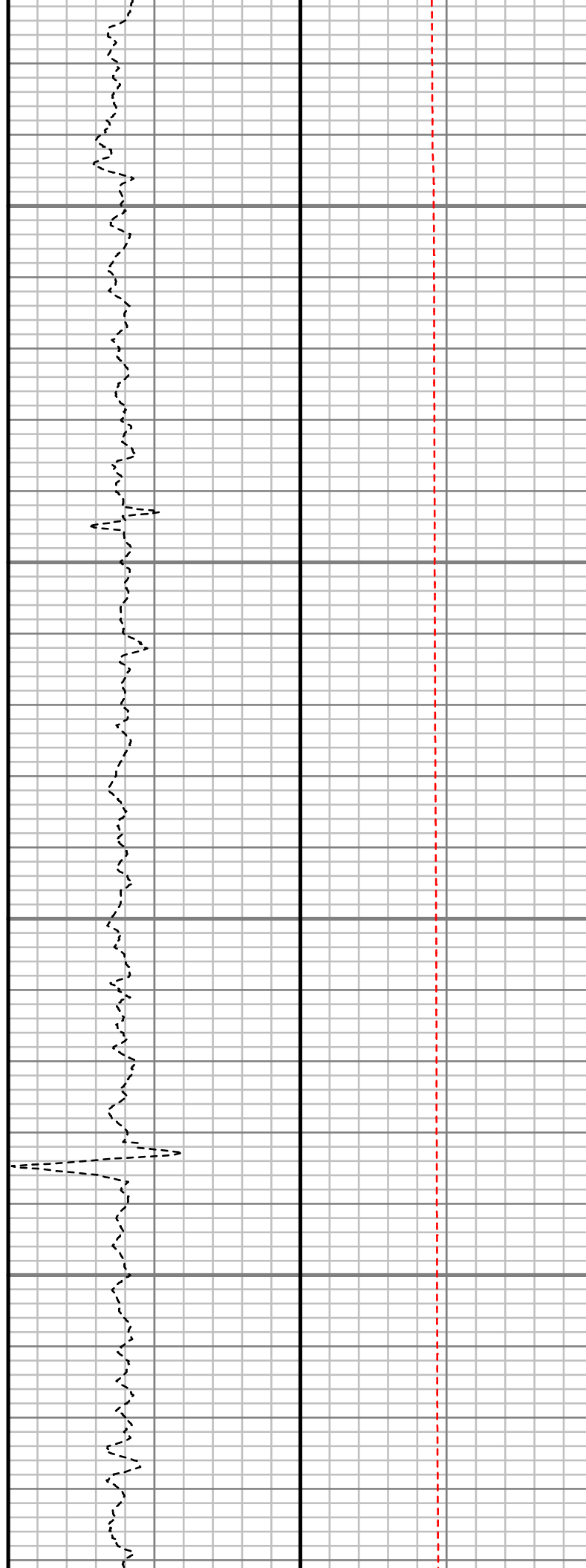
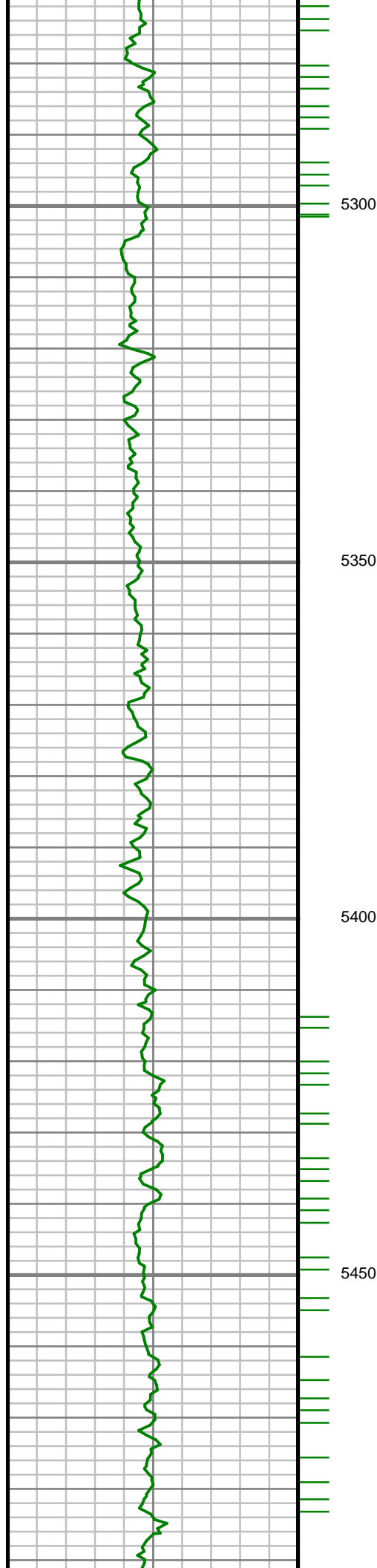


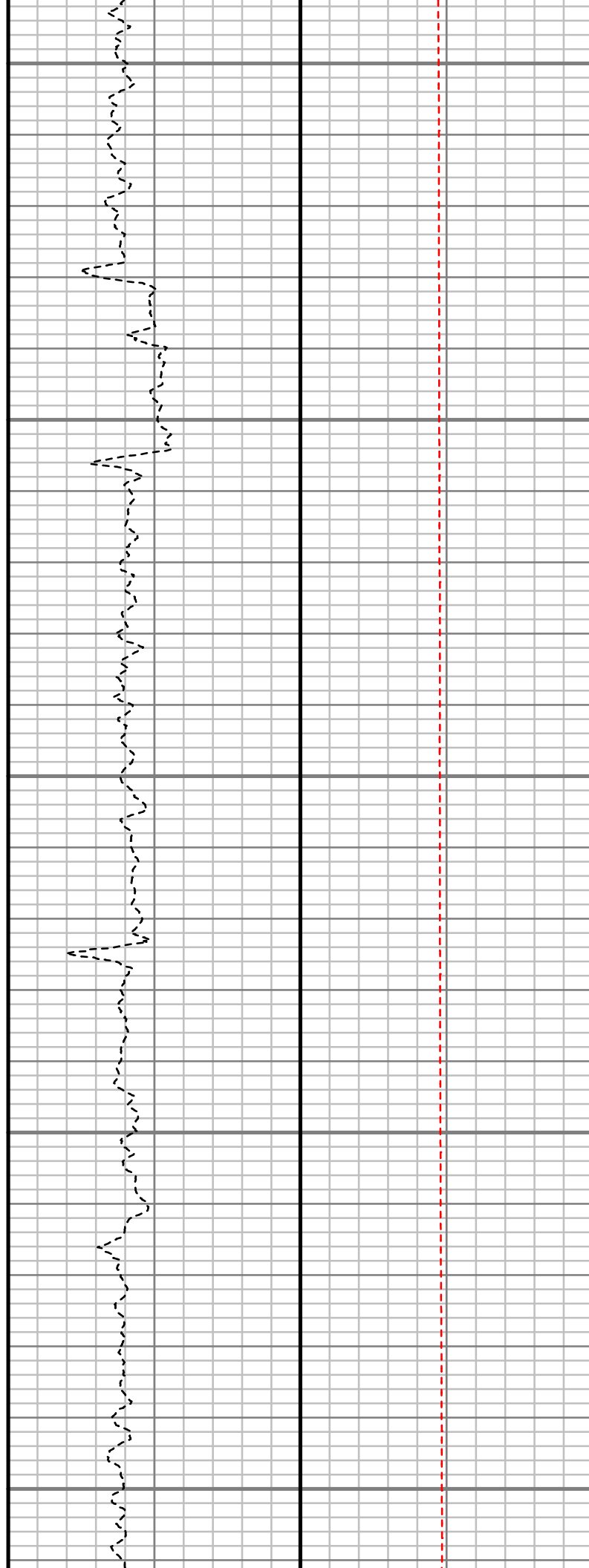
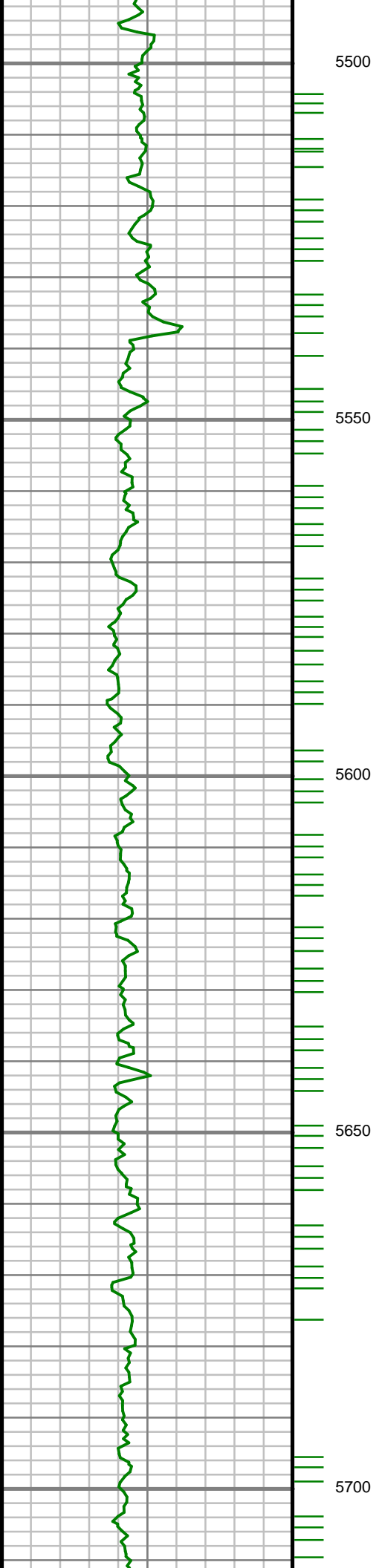
S: 37 MD: 4910.00 ft
Inc: 1.68 deg Az: 46.64
deg TVD: 4862.21 ft

S: 38 MD: 5004.00 ft
Inc: 0.68 deg Az: 8.92
deg TVD: 4956.19 ft

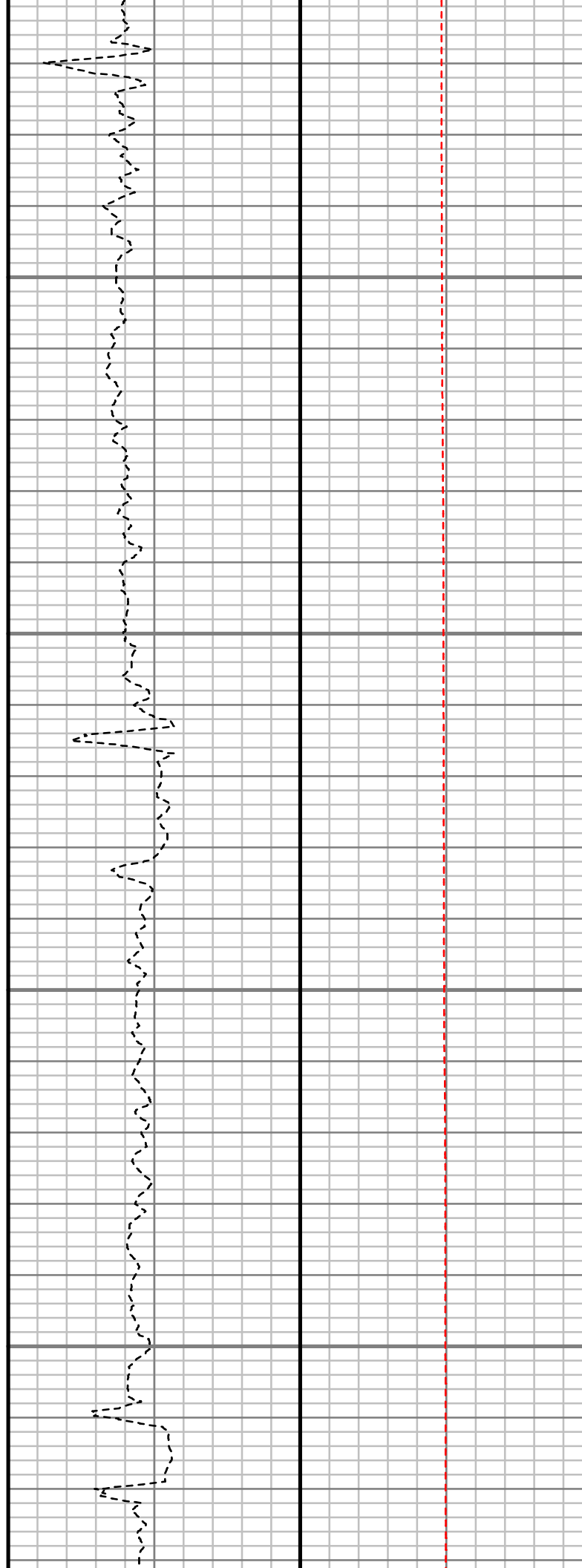
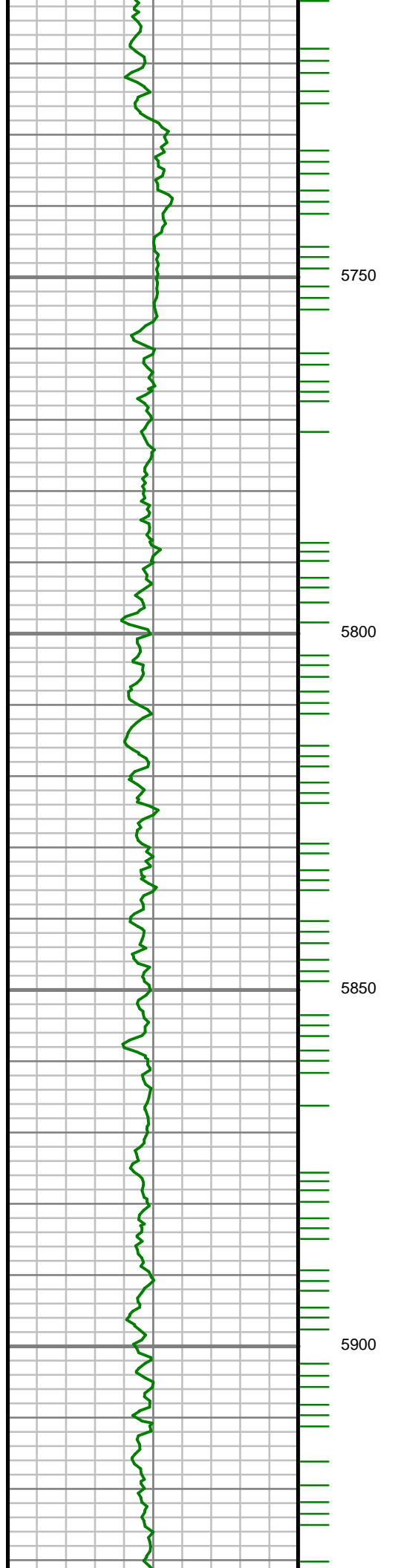


S: 39 MD: 5193.00 ft
Inc: 1.04 deg Az:
323.92 deg TVD:
5145.17 ft



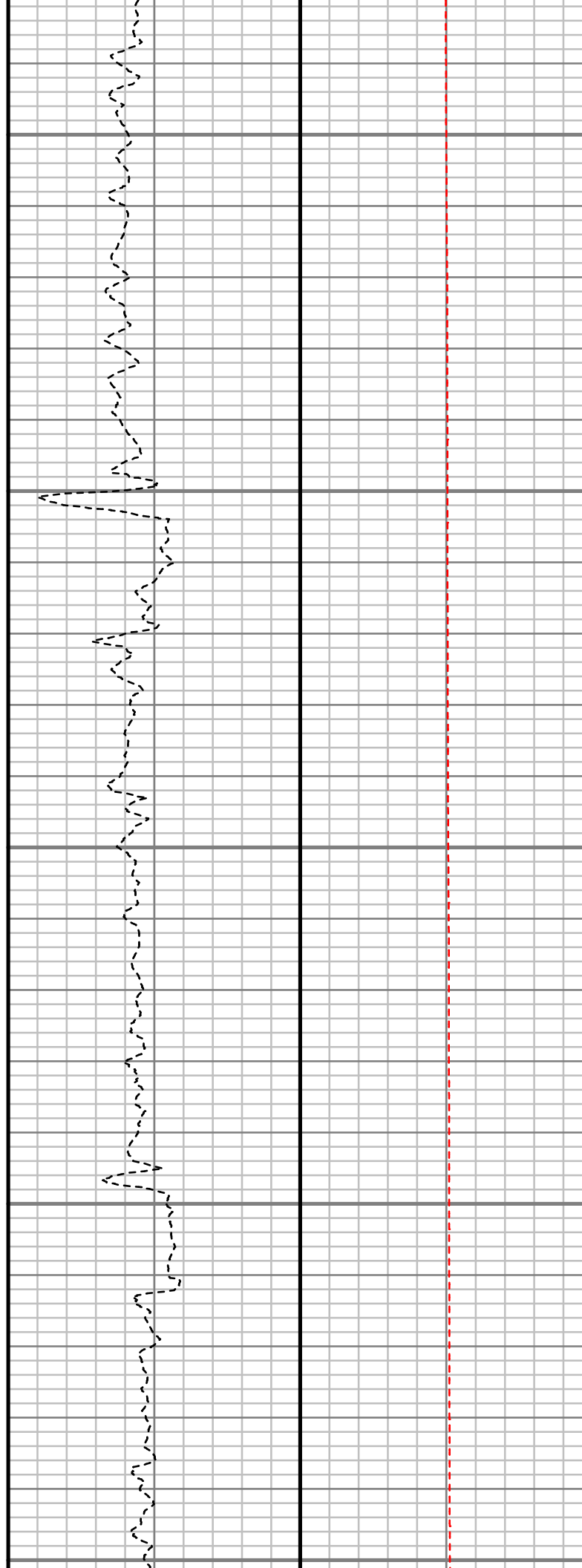
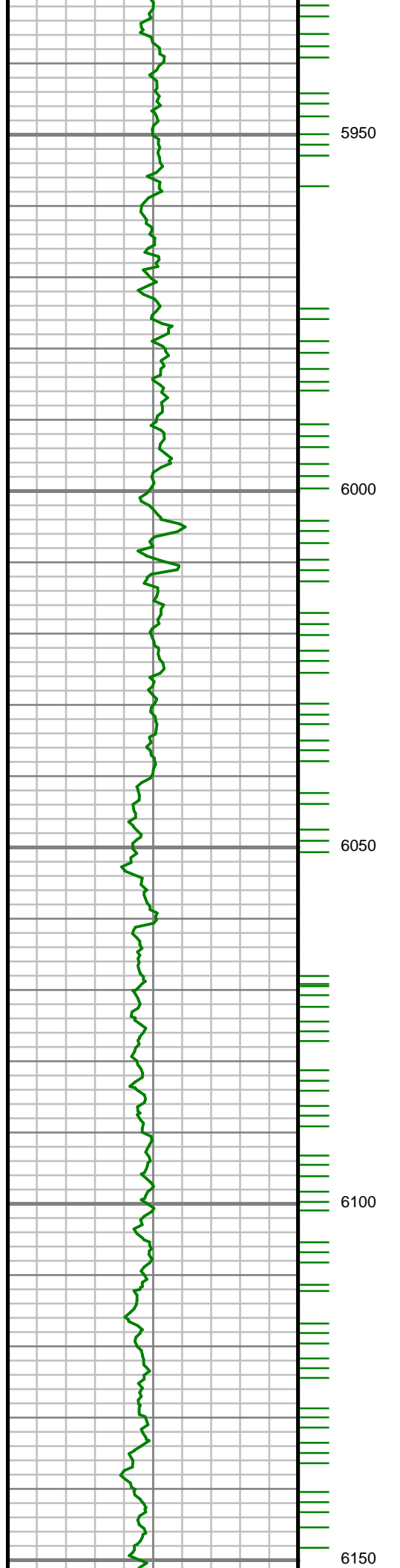


S: 40 MD: 5569.00 ft
Inc: 0.67 deg Az:
227.70 deg TVD:
5521.14 ft



S: 41 MD: 5758.00 ft
Inc: 1.06 deg Az:
258.60 deg TVD:
5710.12 ft

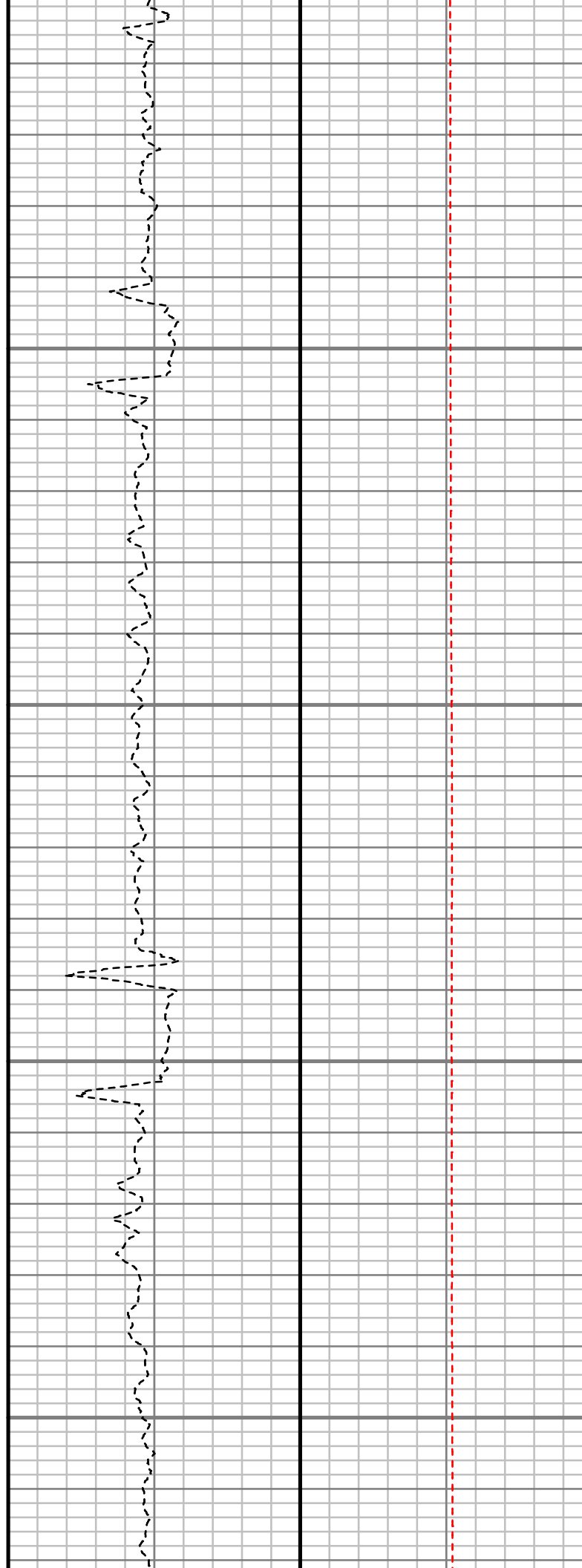
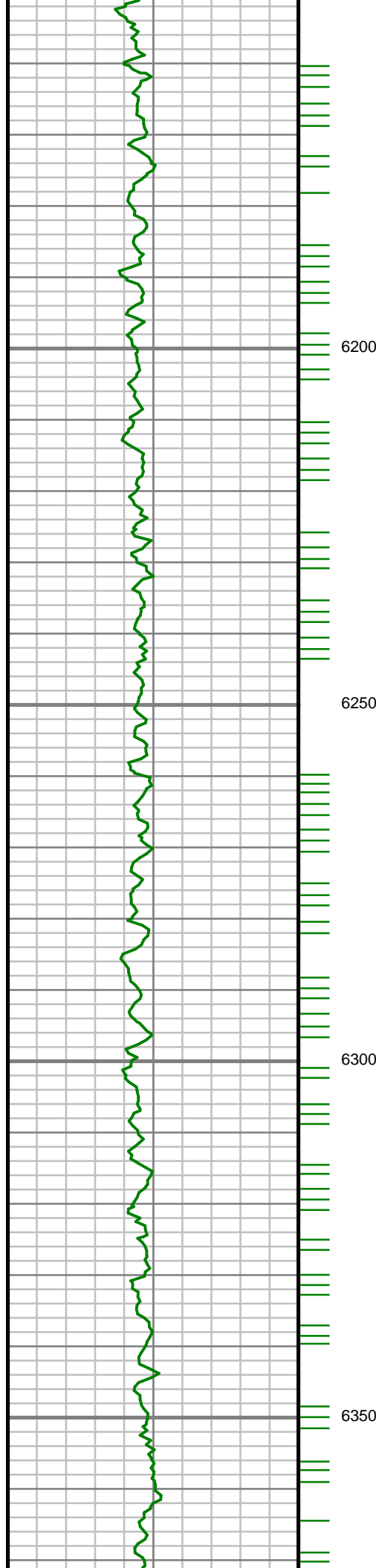
S: 42 MD: 5853.00 ft
Inc: 0.94 deg Az:
274.27 deg TVD:
5805.11 ft



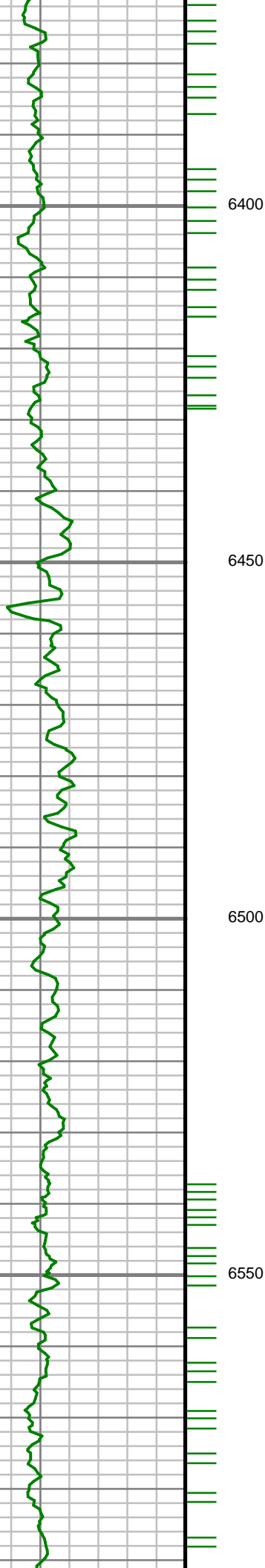
S: 43 MD: 5947.00 ft
Inc: 0.72 deg Az:
284.38 deg TVD:
5899.10 ft

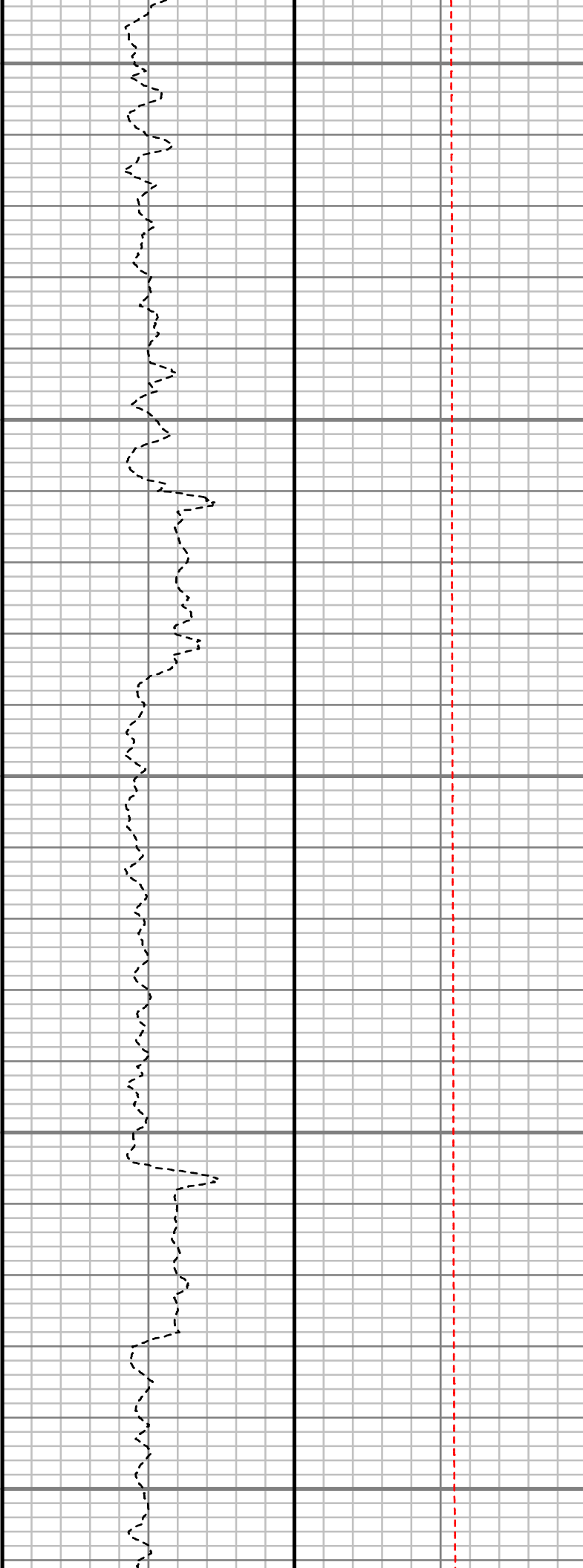
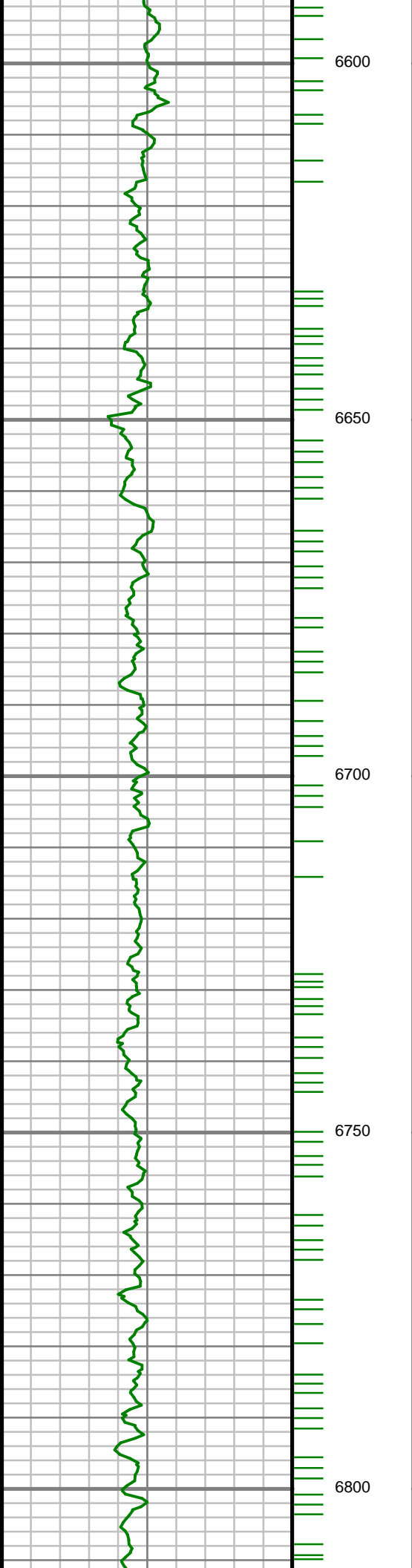
S: 44 MD: 6041.00 ft
Inc: 1.04 deg Az:
297.56 deg TVD:
5993.09 ft

S: 45 MD: 6136.00 ft
Inc: 1.31 deg Az:
307.97 deg TVD:
6088.07 ft



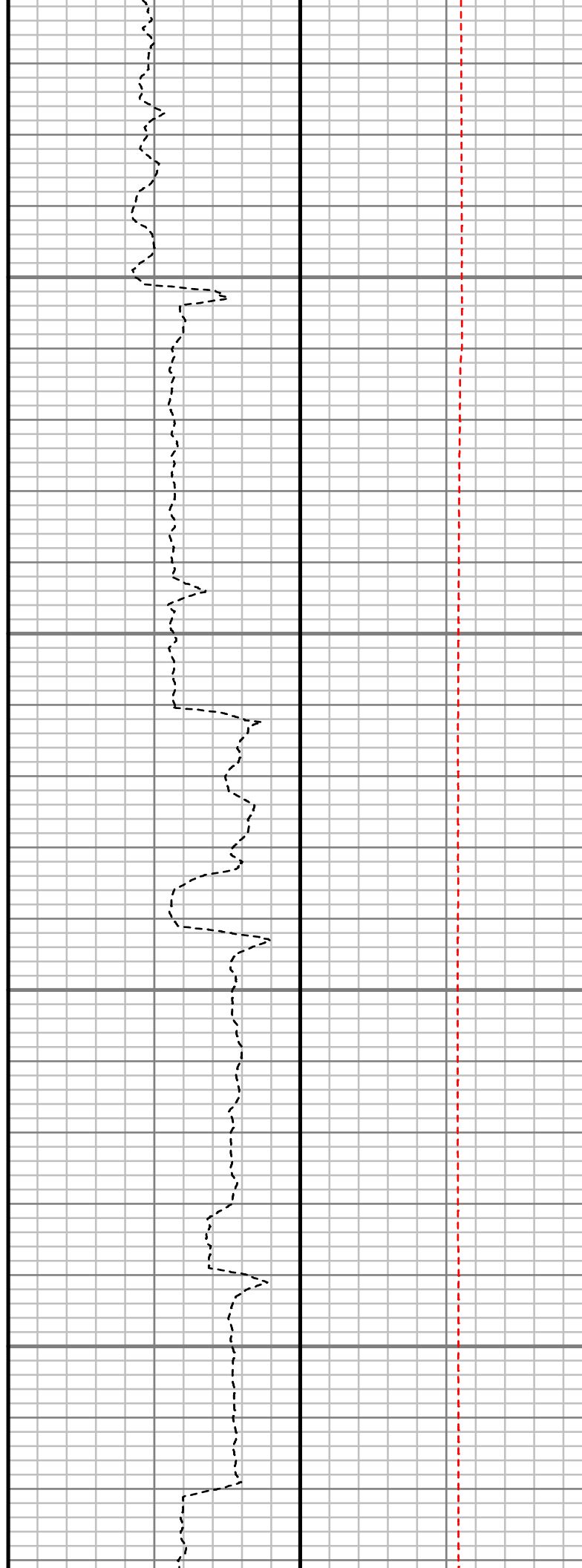
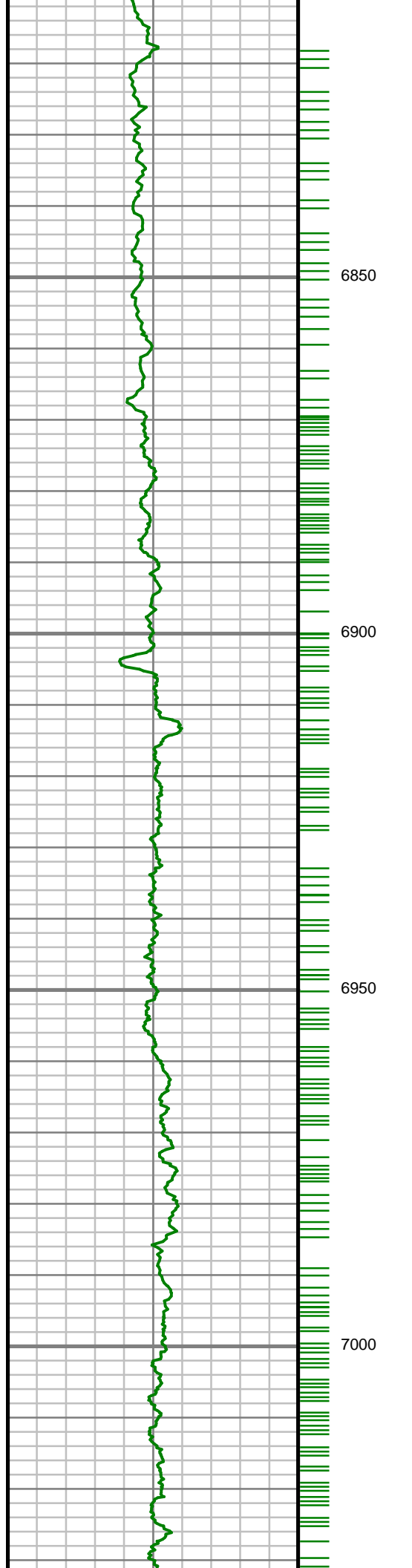
S: 46 MD: 6230.00 ft
Inc: 1.04 deg Az:
325.31 deg TVD:
6182.05 ft





S: 47 MD: 6607.00 ft
Inc: 1.08 deg Az: 4.91
deg TVD: 6558.99 ft

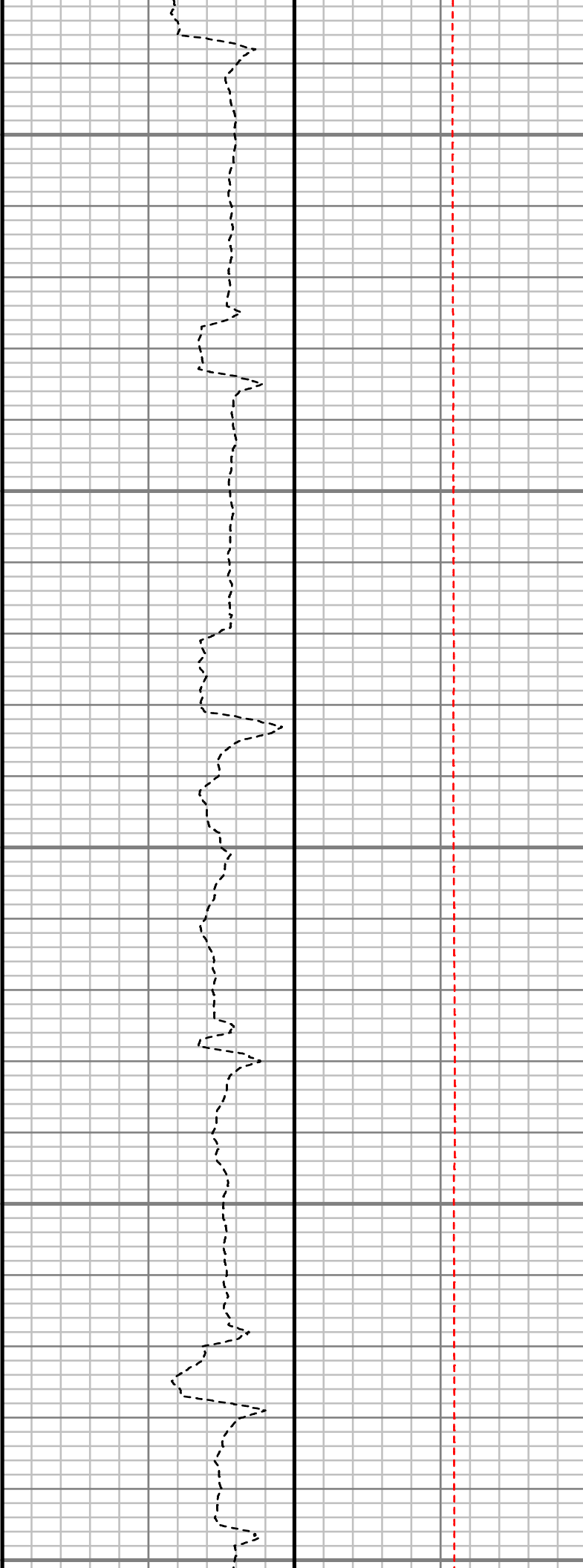
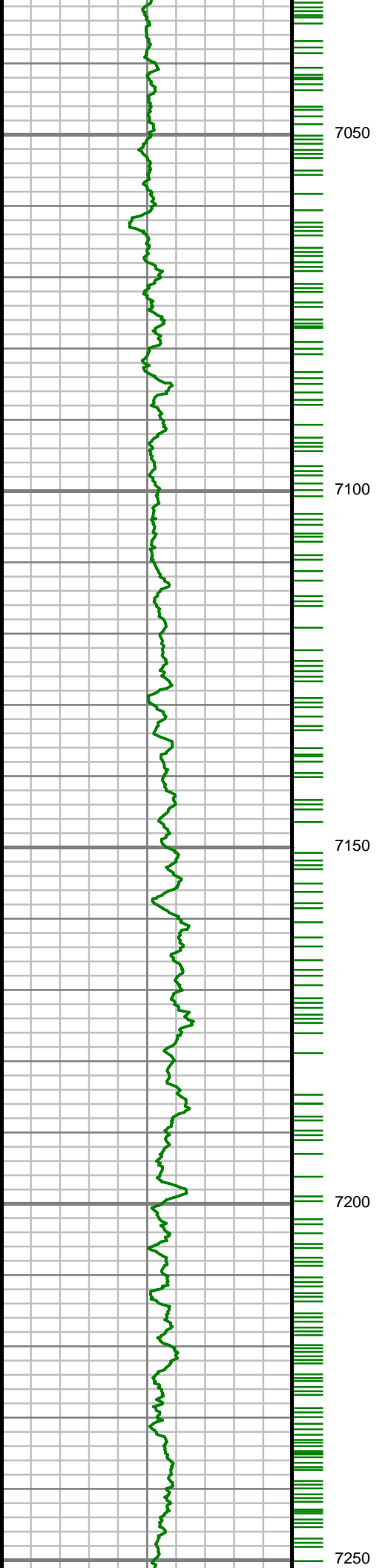
S: 48 MD: 6701.00 ft
Inc: 1.15 deg Az: 356.86 deg TVD: 6652.97 ft



S: 49 MD: 6890.00 ft
Inc: 0.61 deg Az:
330.96 deg TVD:
6841.95 ft

S: 50 MD: 6937.00 ft
Inc: 2.75 deg Az: 10.67
deg TVD: 6888.93 ft

S: 51 MD: 6984.00 ft
Inc: 7.58 deg Az: 2.12
deg TVD: 6935.72 ft



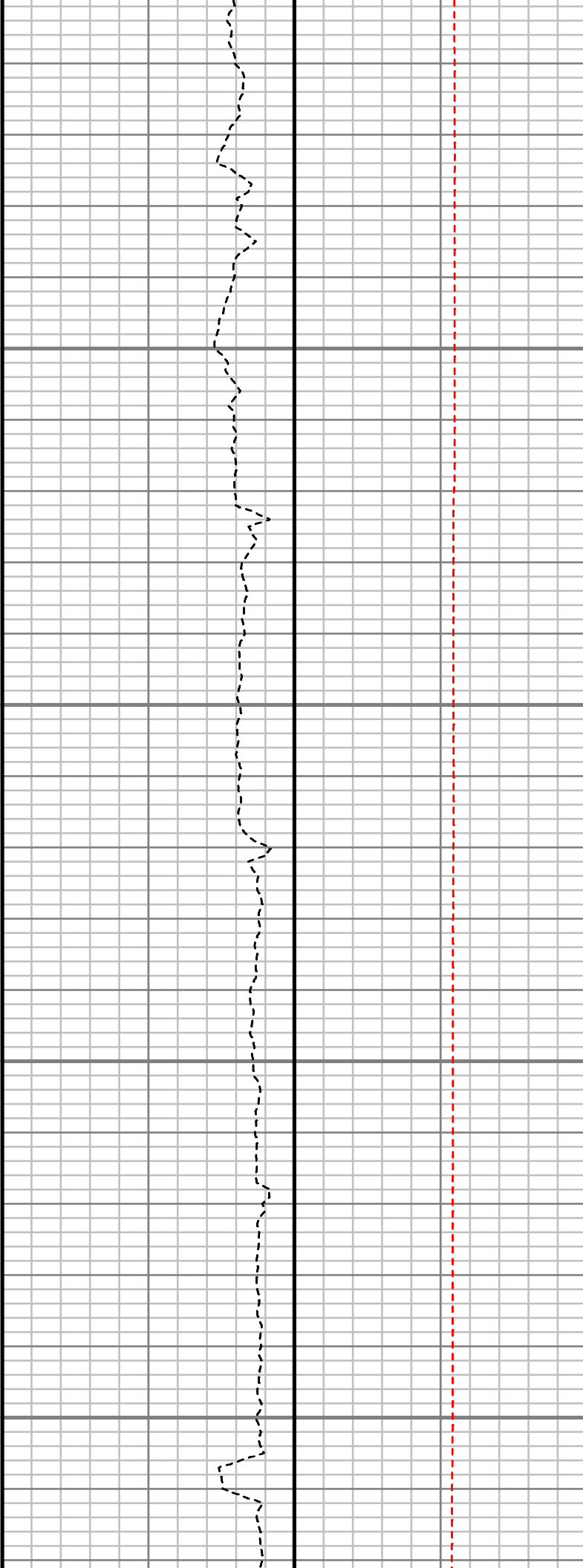
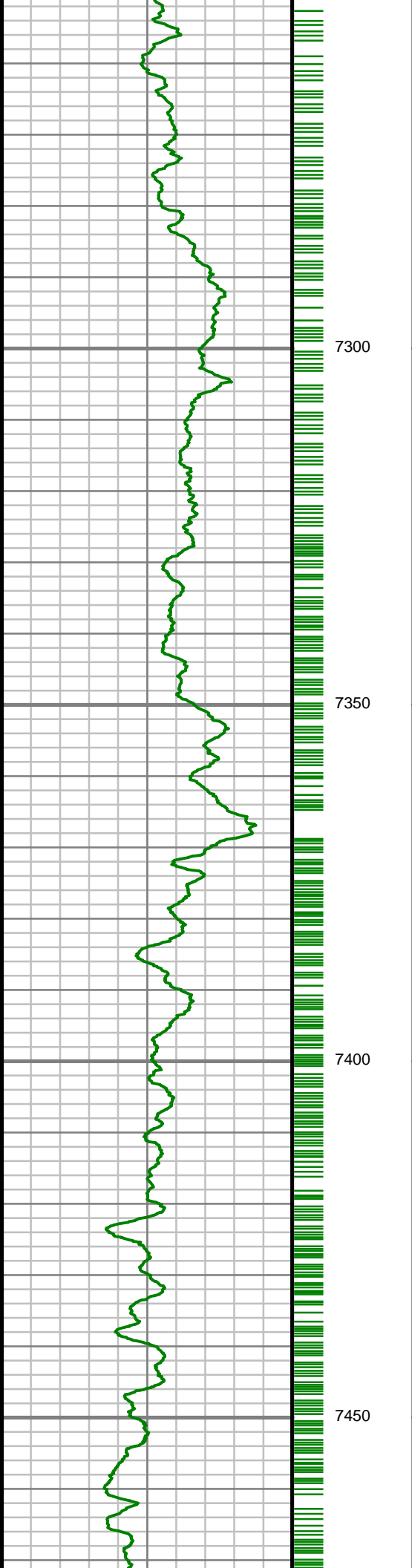
S: 52 MD: 7031.00 ft
Inc: 10.77 deg Az:
357.18 deg TVD:
6982.11 ft

S: 53 MD: 7079.00 ft
Inc: 14.53 deg Az:
354.27 deg TVD:
7028.94 ft

S: 54 MD: 7126.00 ft
Inc: 17.16 deg Az:
355.36 deg TVD:
7074.15 ft

S: 55 MD: 7173.00 ft
Inc: 19.11 deg Az:
354.30 deg TVD:
7118.82 ft

S: 56 MD: 7220.00 ft
Inc: 22.26 deg Az:
353.27 deg TVD:
7162.78 ft



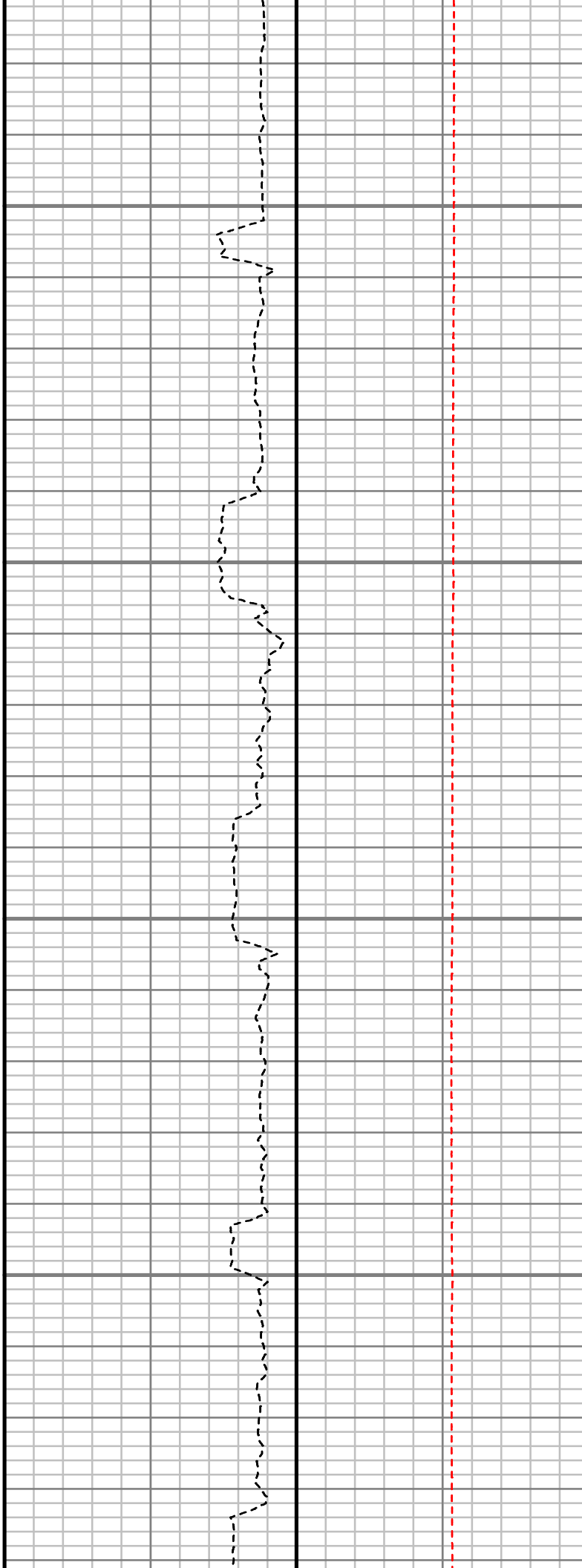
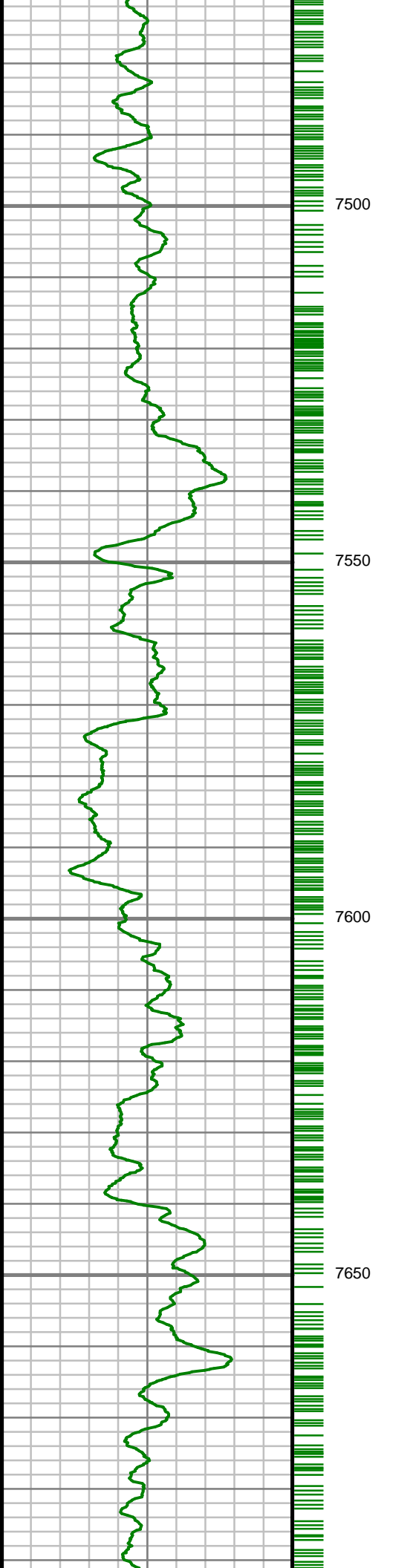
S: 57 MD: 7267.00 ft
Inc: 23.22 deg Az:
353.21 deg TVD:
7206.13 ft

S: 58 MD: 7314.00 ft
Inc: 26.14 deg Az:
351.14 deg TVD:
7248.83 ft

S: 59 MD: 7361.00 ft
Inc: 31.75 deg Az:
349.25 deg TVD:
7289.94 ft

S: 60 MD: 7408.00 ft
Inc: 37.22 deg Az:
349.67 deg TVD:
7328.67 ft

S: 61 MD: 7456.00 ft
Inc: 42.82 deg Az:
353.46 deg TVD:
7365.42 ft

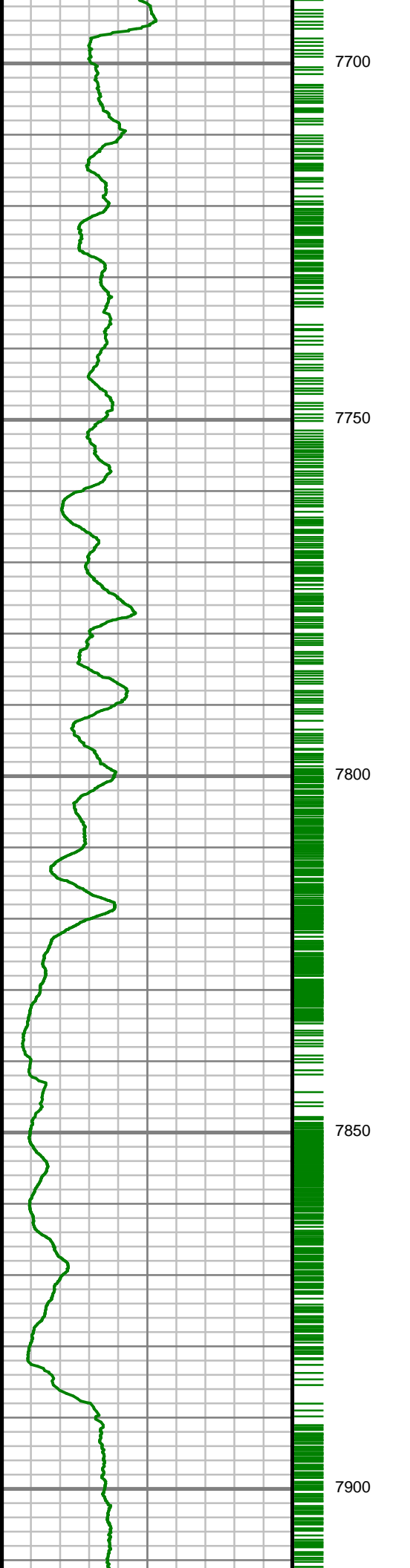


S: 62 MD: 7503.00 ft
Inc: 47.57 deg Az:
356.86 deg TVD:
7398.54 ft

S: 63 MD: 7550.00 ft
Inc: 51.23 deg Az:
357.51 deg TVD:
7429.12 ft

S: 64 MD: 7597.00 ft
Inc: 54.49 deg Az:
358.47 deg TVD:
7457.49 ft

S: 65 MD: 7645.00 ft
Inc: 59.41 deg Az: 2.34
deg TVD: 7483.67 ft



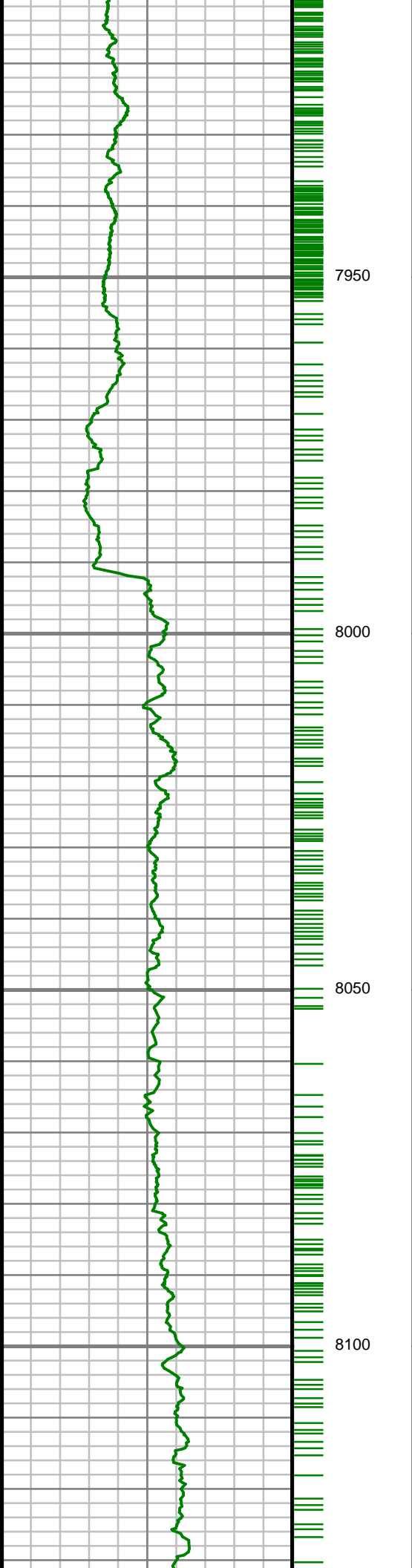
S: 66 MD: 7692.00 ft
Inc: 63.27 deg Az: 3.96
deg TVD: 7506.21 ft

S: 67 MD: 7739.00 ft
Inc: 66.50 deg Az: 5.28
deg TVD: 7526.16 ft

S: 68 MD: 7786.00 ft
Inc: 69.54 deg Az: 5.64
deg TVD: 7543.74 ft

S: 69 MD: 7833.00 ft
Inc: 72.39 deg Az: 5.91
deg TVD: 7559.07 ft

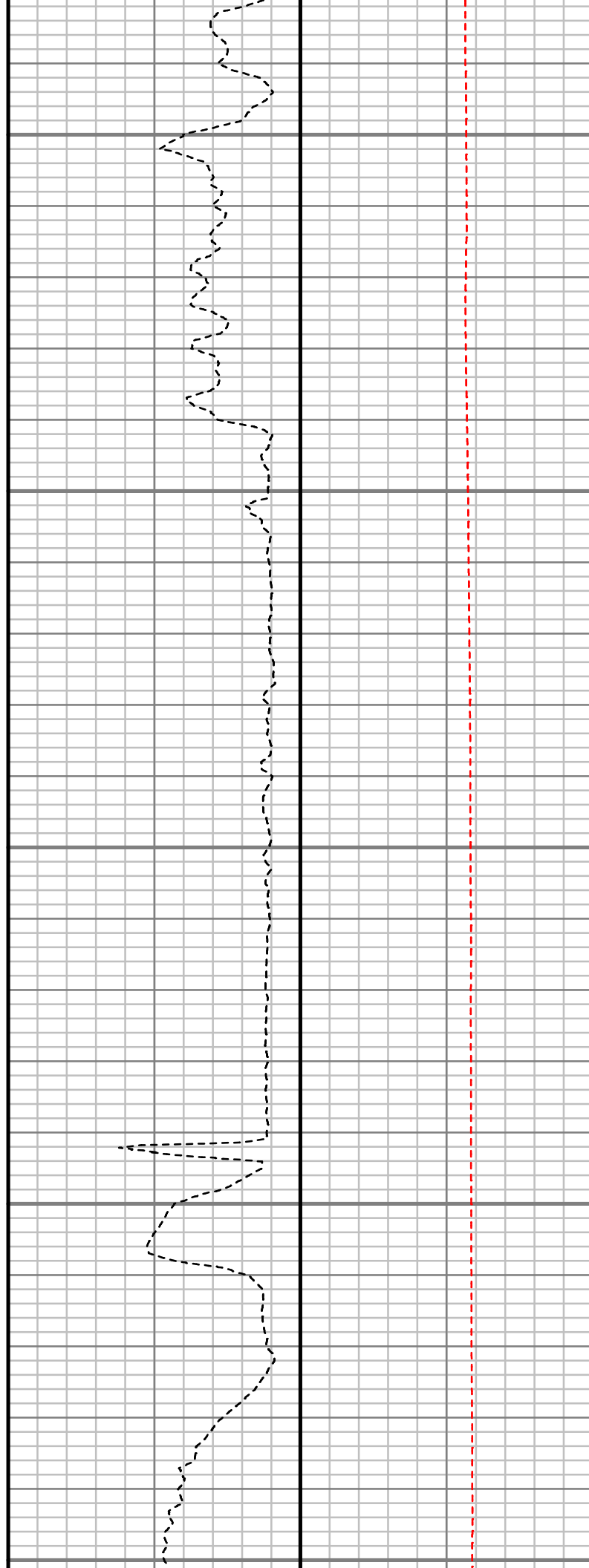
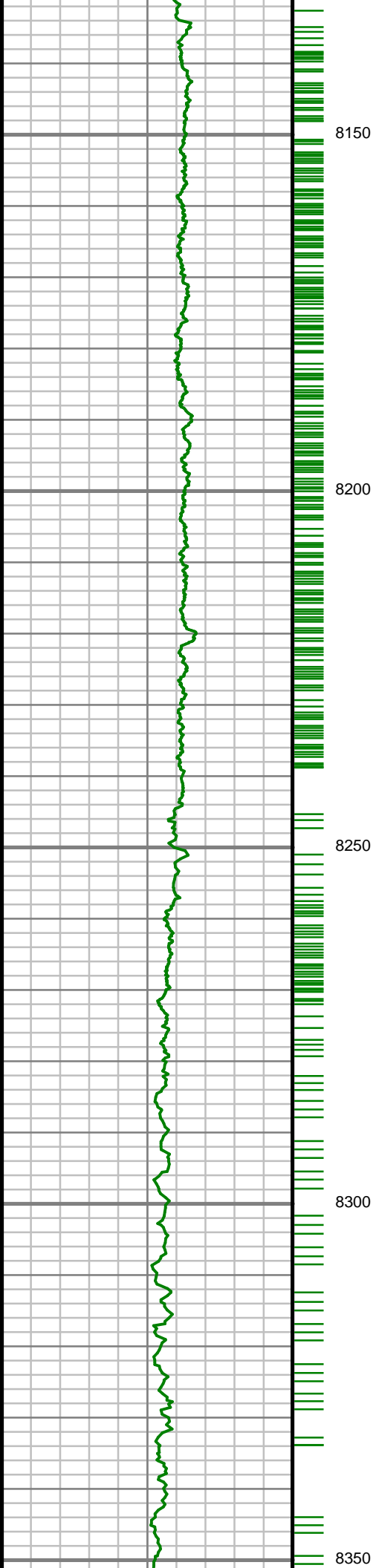
S: 70 MD: 7880.00 ft
Inc: 75.34 deg Az: 5.31
deg TVD: 7572.13 ft



S: 71 MD: 7927.00 ft
Inc: 80.16 deg Az: 4.70
deg TVD: 7582.10 ft

S: 72 MD: 7958.00 ft
Inc: 83.65 deg Az: 5.15
deg TVD: 7586.46 ft

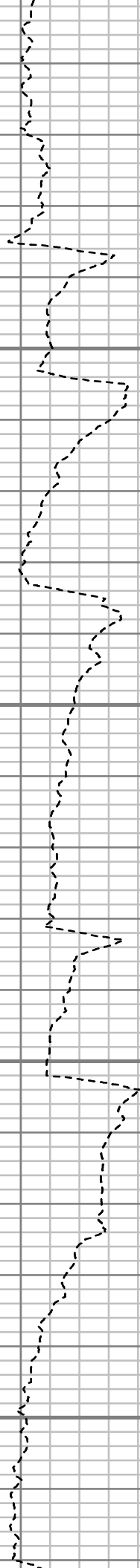
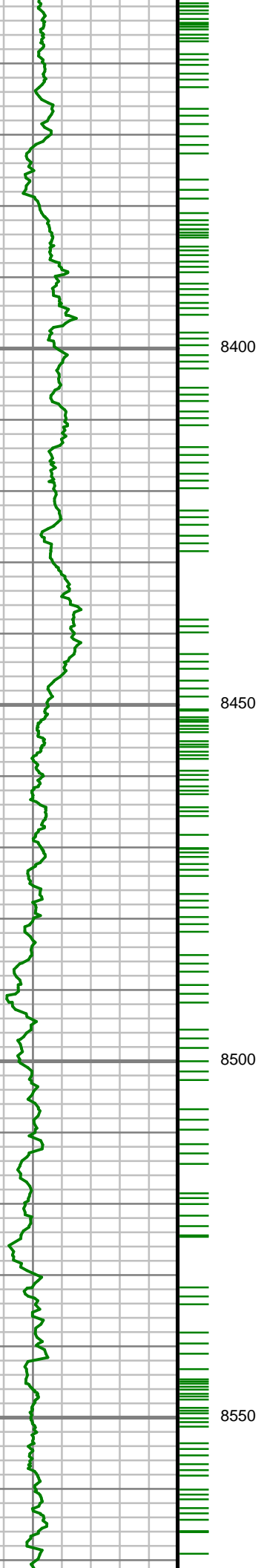
S: 73 MD: 8039.00 ft
Inc: 86.68 deg Az: 4.21
deg TVD: 7593.29 ft



S: 74 MD: 8134.00 ft
Inc: 89.02 deg Az: 5.21
deg TVD: 7596.85 ft

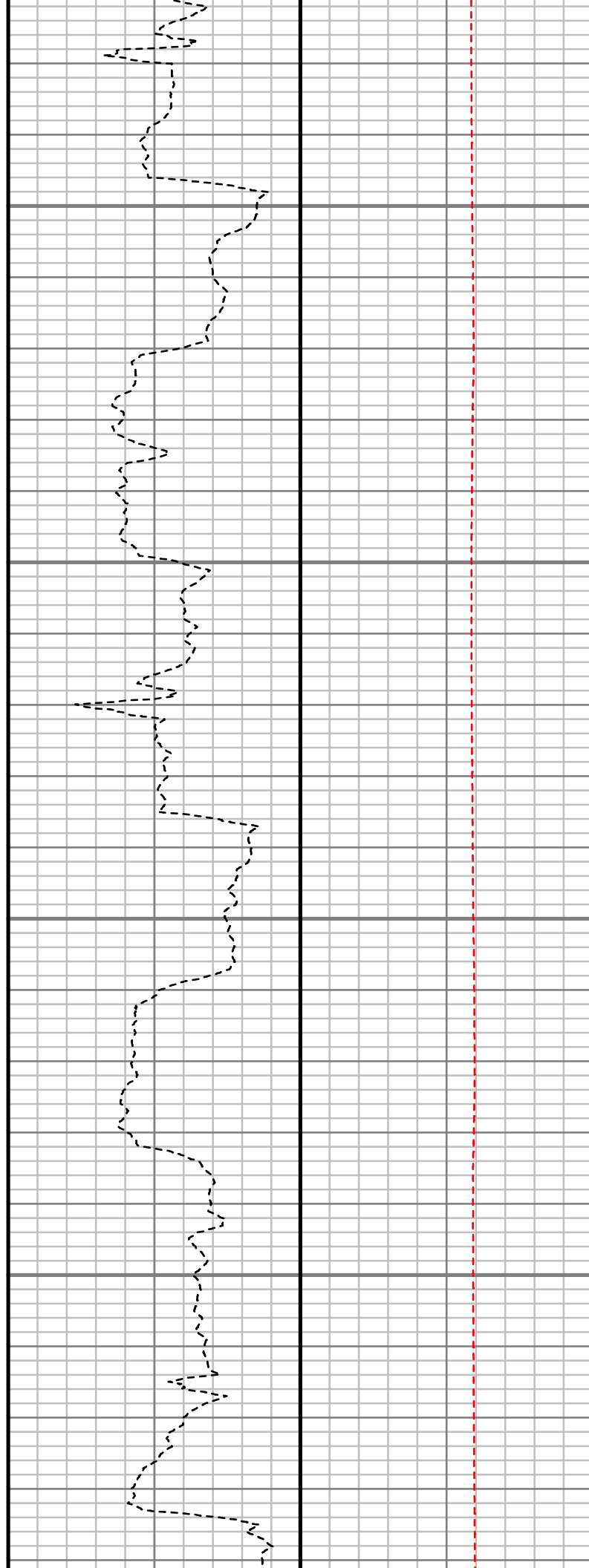
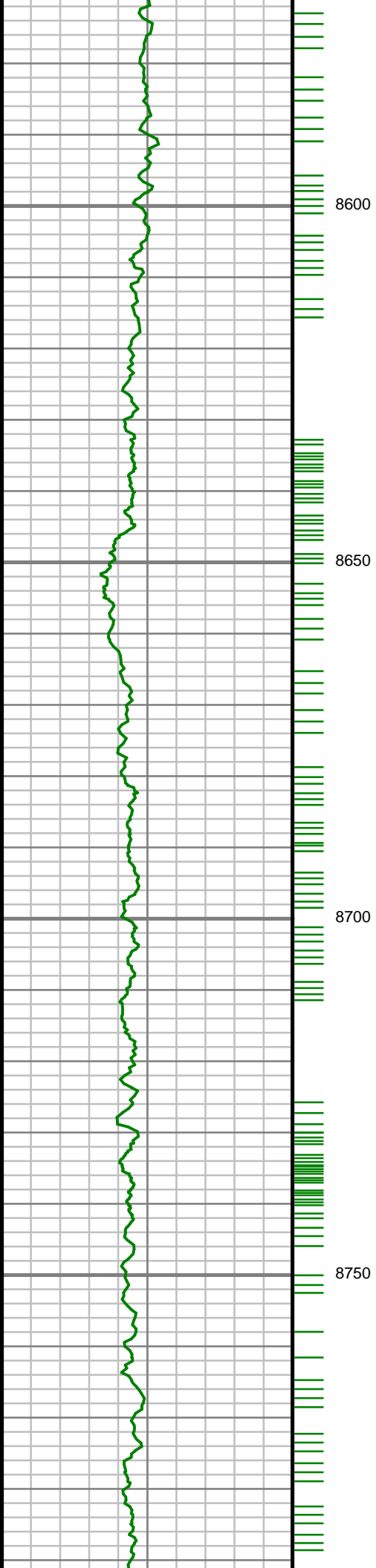
S: 75 MD: 8228.00 ft
Inc: 90.71 deg Az: 5.50
deg TVD: 7597.07 ft

S: 76 MD: 8323.00 ft
Inc: 91.51 deg Az: 3.79
deg TVD: 7595.24 ft

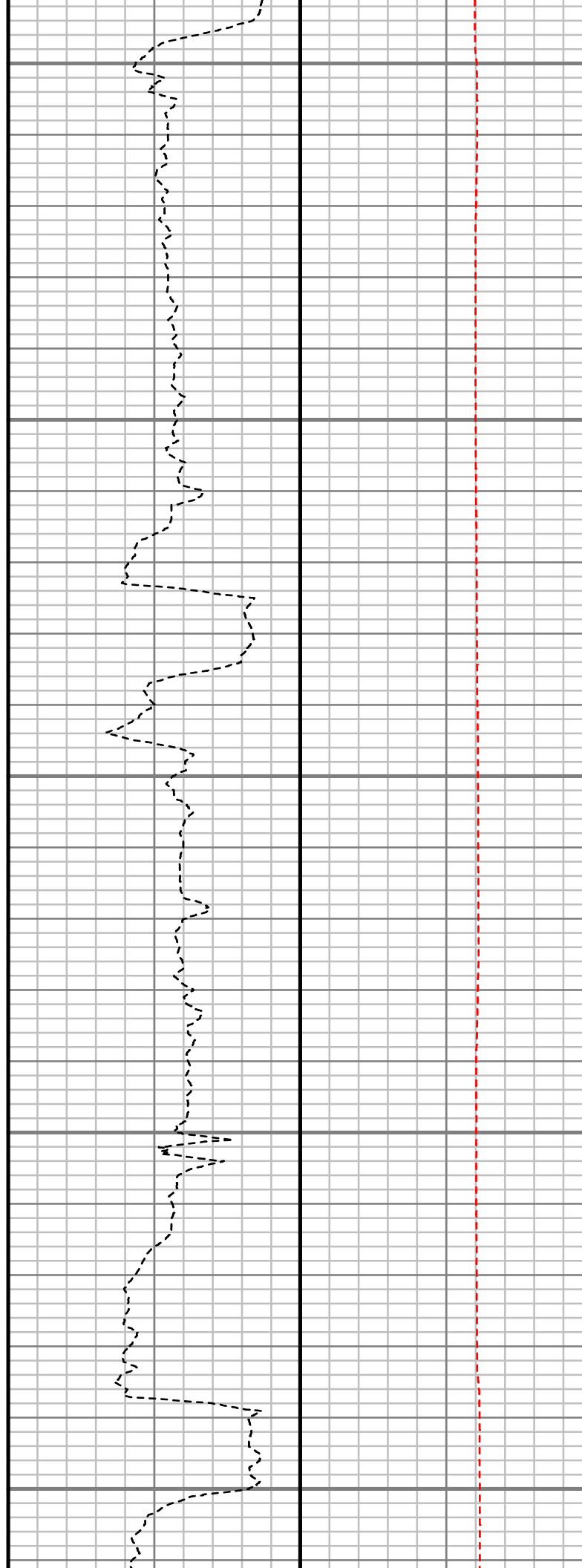
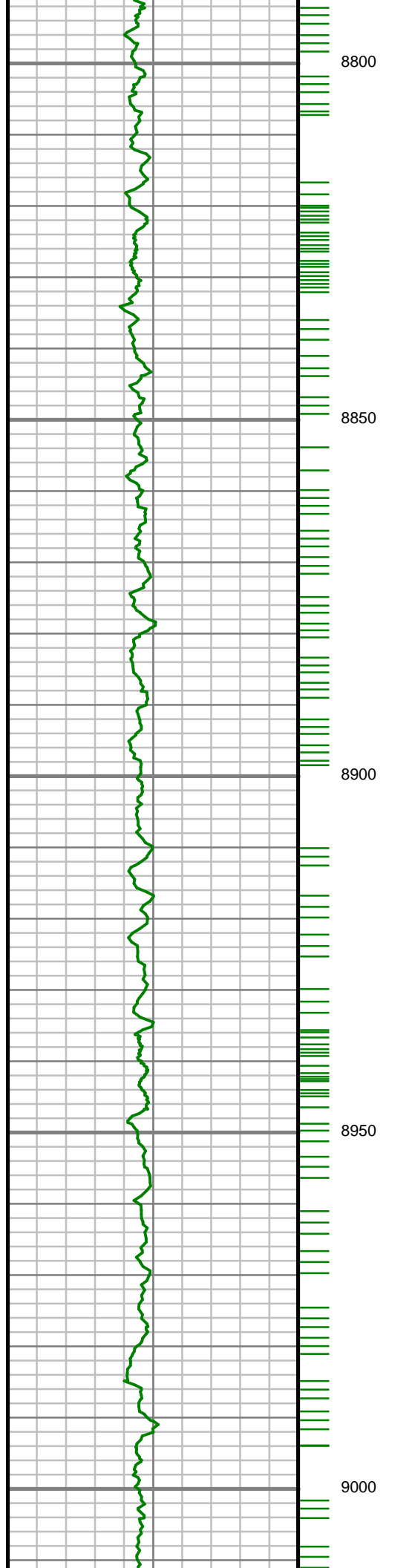


S: 77 MD: 8417.00 ft
Inc: 92.58 deg Az: 4.04
deg TVD: 7591.88 ft

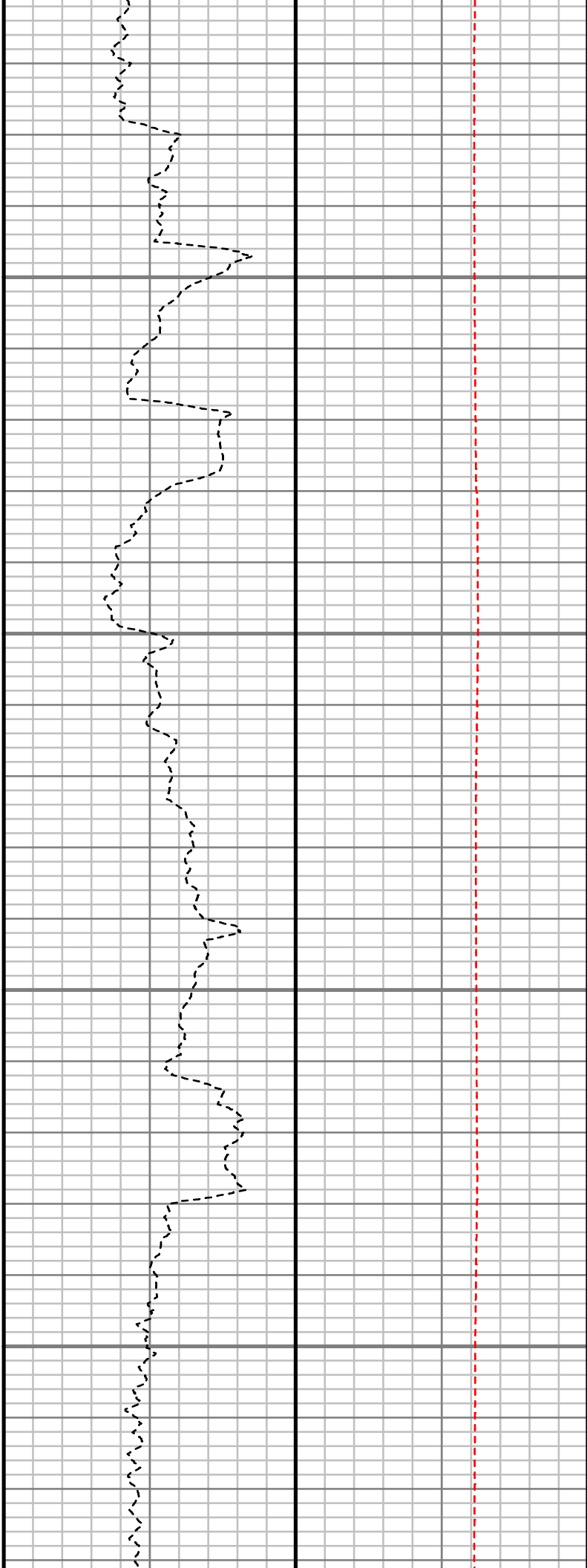
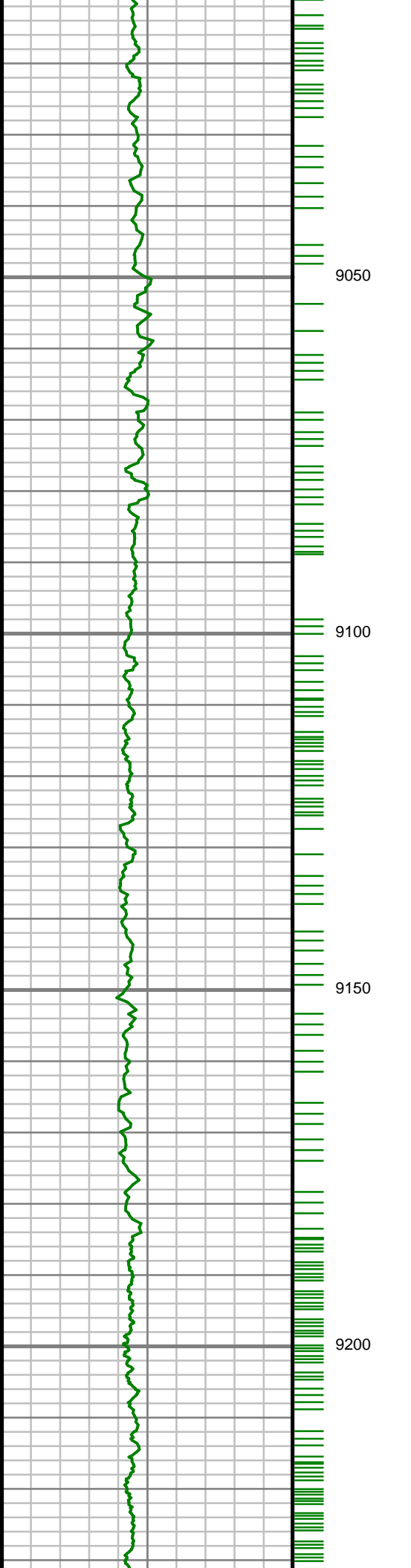
S: 78 MD: 8511.00 ft
Inc: 92.42 deg Az: 2.84
deg TVD: 7587.78 ft



S: 79 MD: 8700.00 ft
Inc: 89.87 deg Az: 1.16
deg TVD: 7584.01 ft

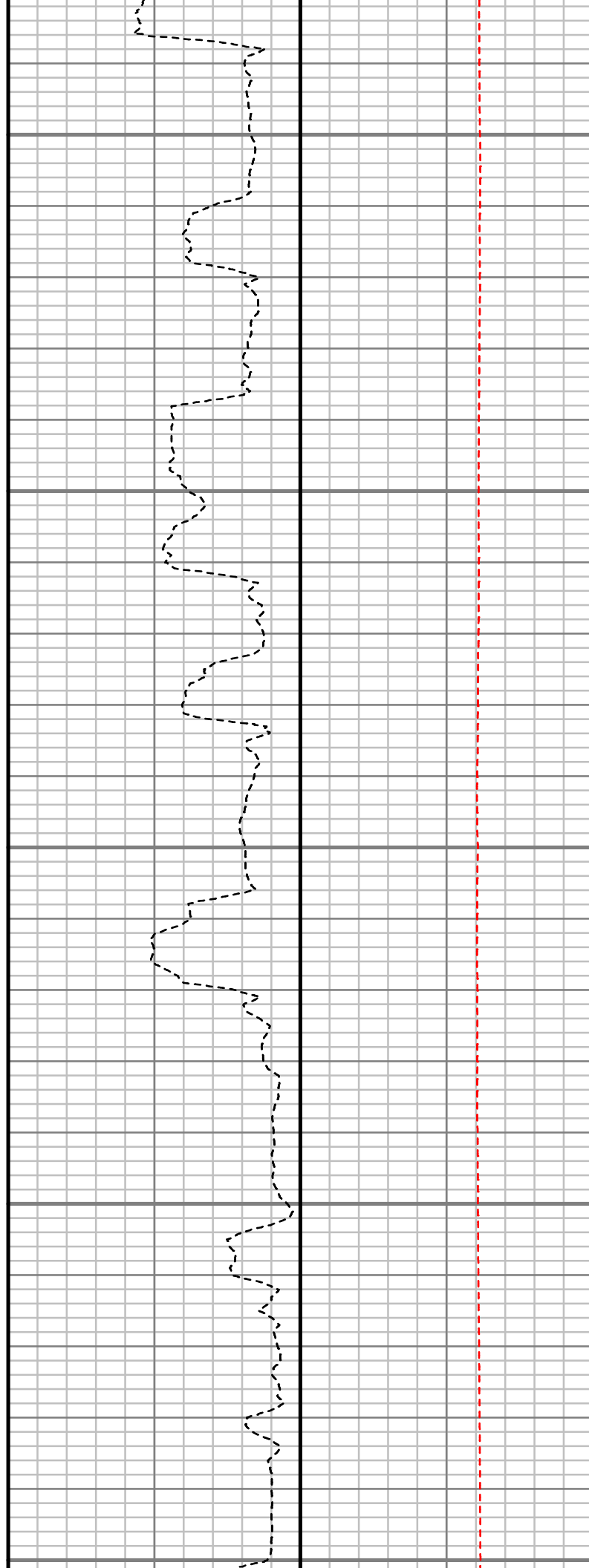
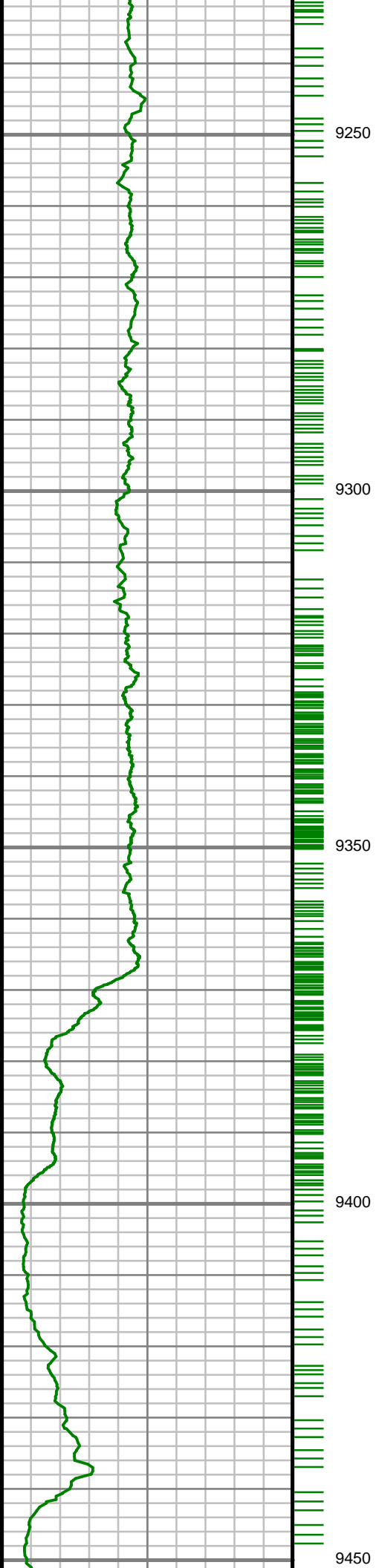


S: 80 MD: 8889.00 ft
Inc: 88.05 deg Az:
359.73 deg TVD:
7587.44 ft



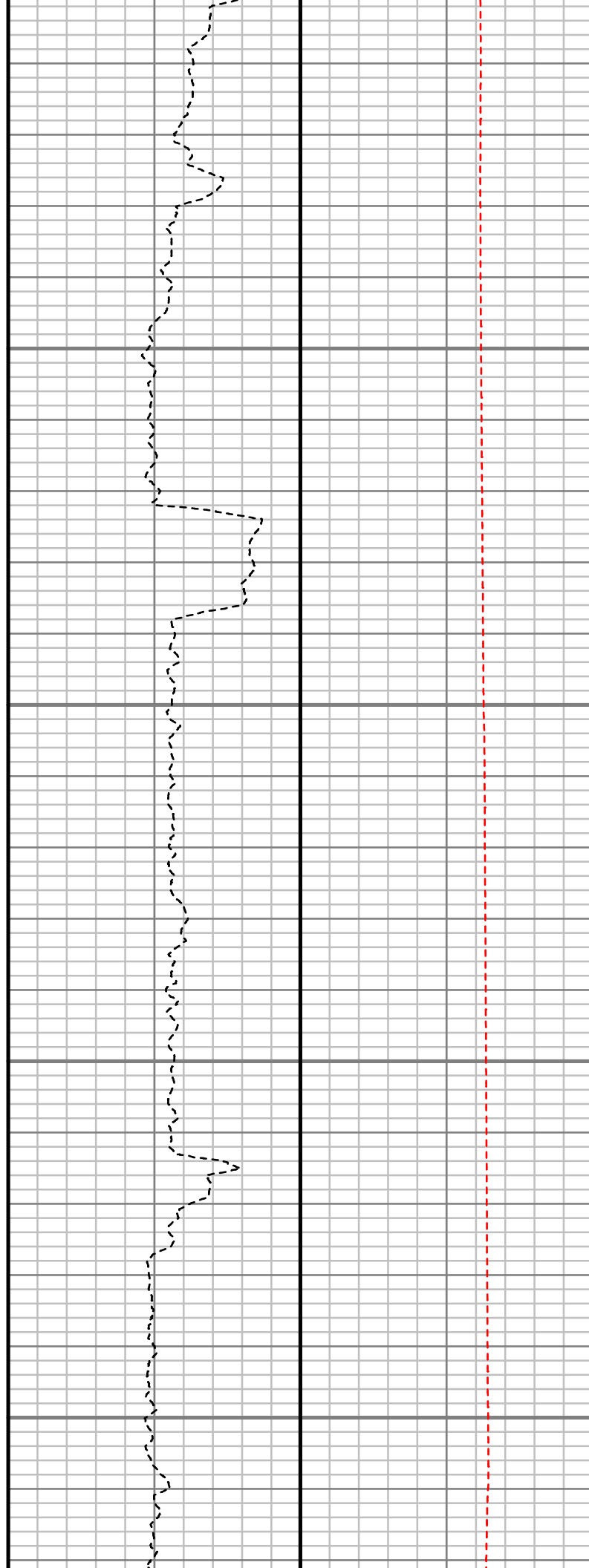
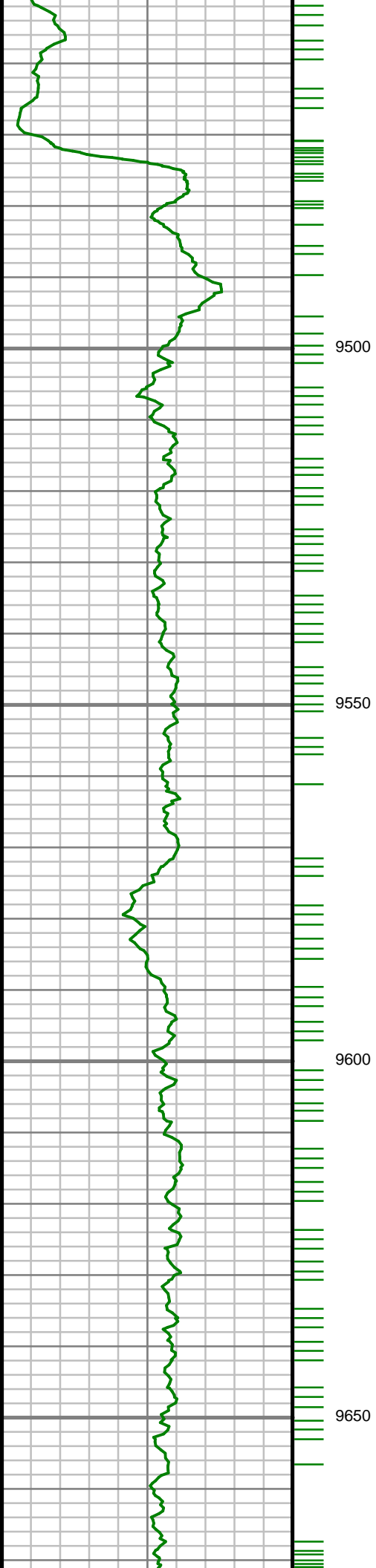
S: 81 MD: 9077.00 ft
Inc: 89.39 deg Az:
358.93 deg TVD:
7591.63 ft

S: 82 MD: 9171.00 ft
Inc: 87.11 deg Az:
356.23 deg TVD:
7594.50 ft



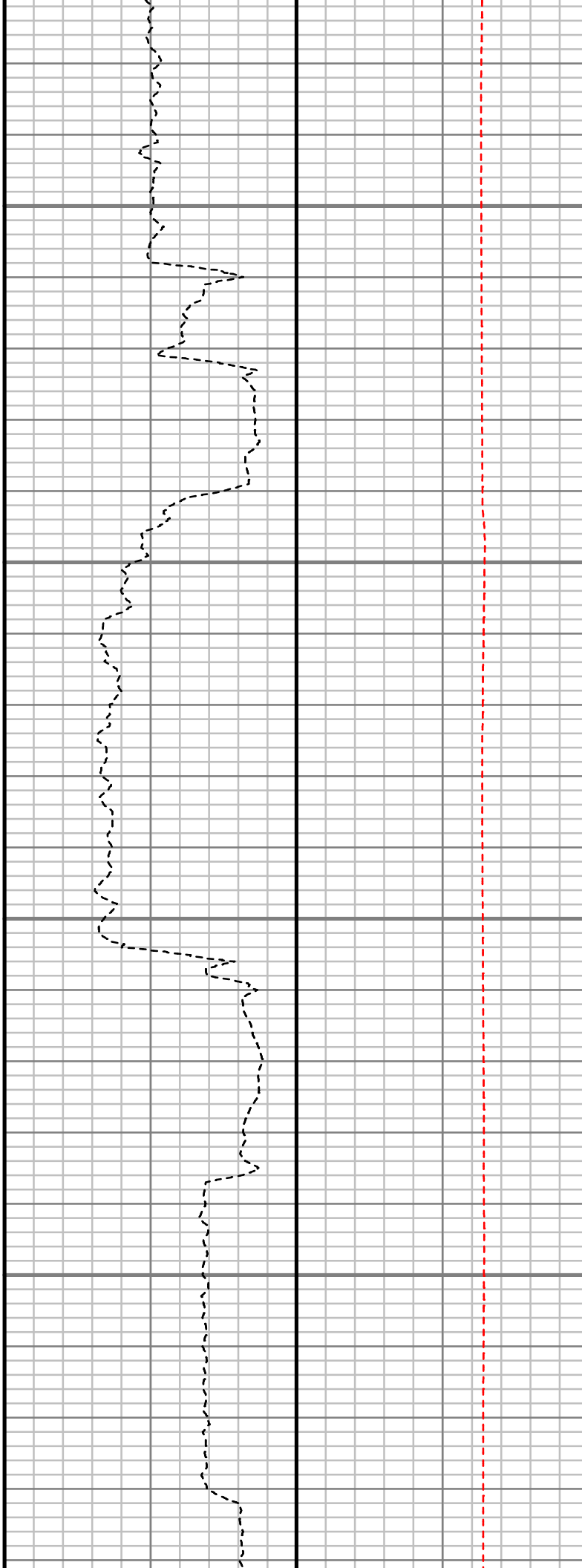
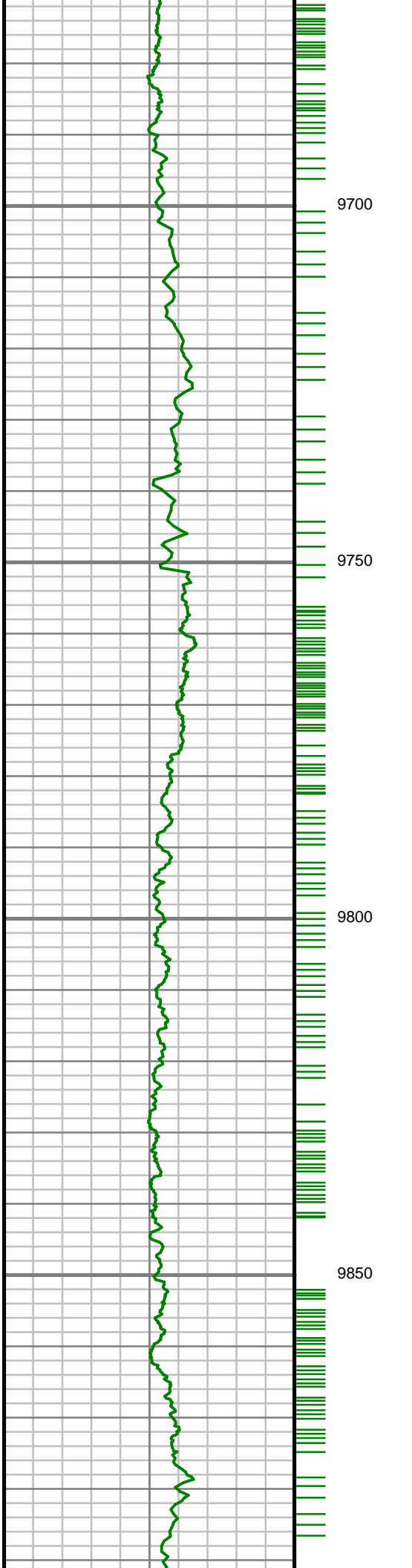
S: 83 MD: 9360.00 ft
Inc: 87.41 deg Az:
354.36 deg TVD:
7603.54 ft

S: 84 MD: 9437.00 ft
Inc: 89.02 deg Az:
354.79 deg TVD:
7605.93 ft

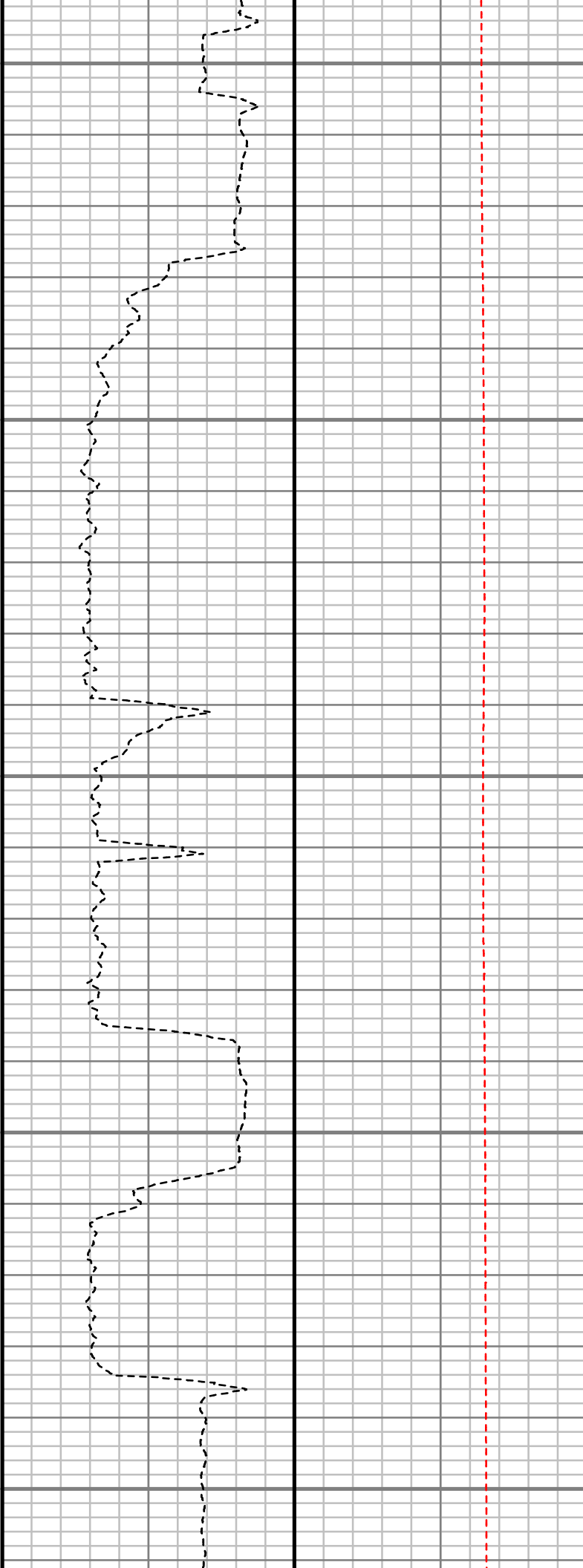
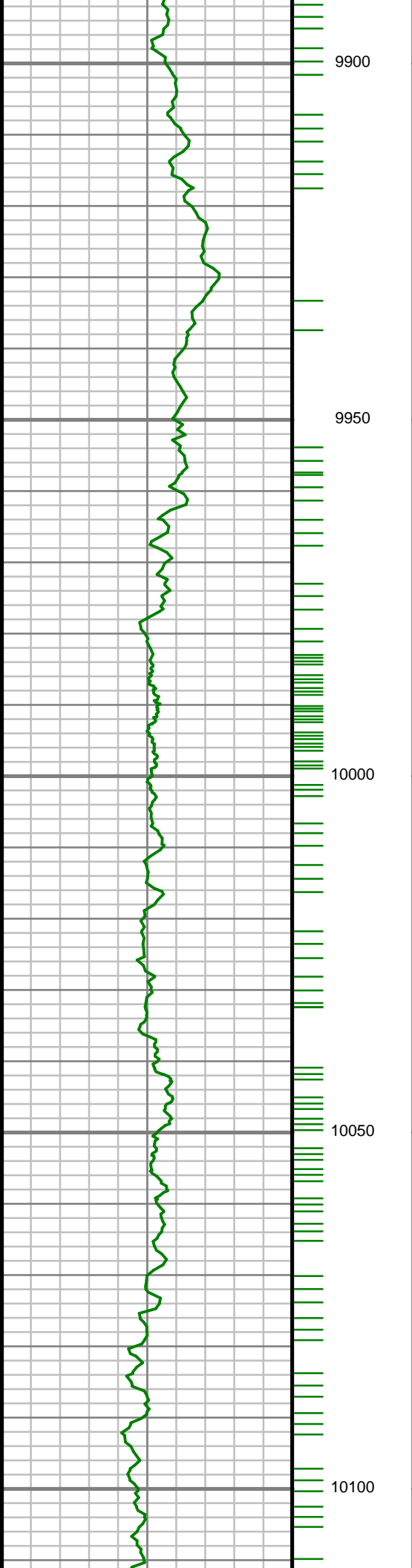


S: 85 MD: 9549.00 ft
Inc: 91.85 deg Az:
356.58 deg TVD:
7605.08 ft

S: 86 MD: 9643.00 ft
Inc: 92.89 deg Az:
356.46 deg TVD:
7601.19 ft

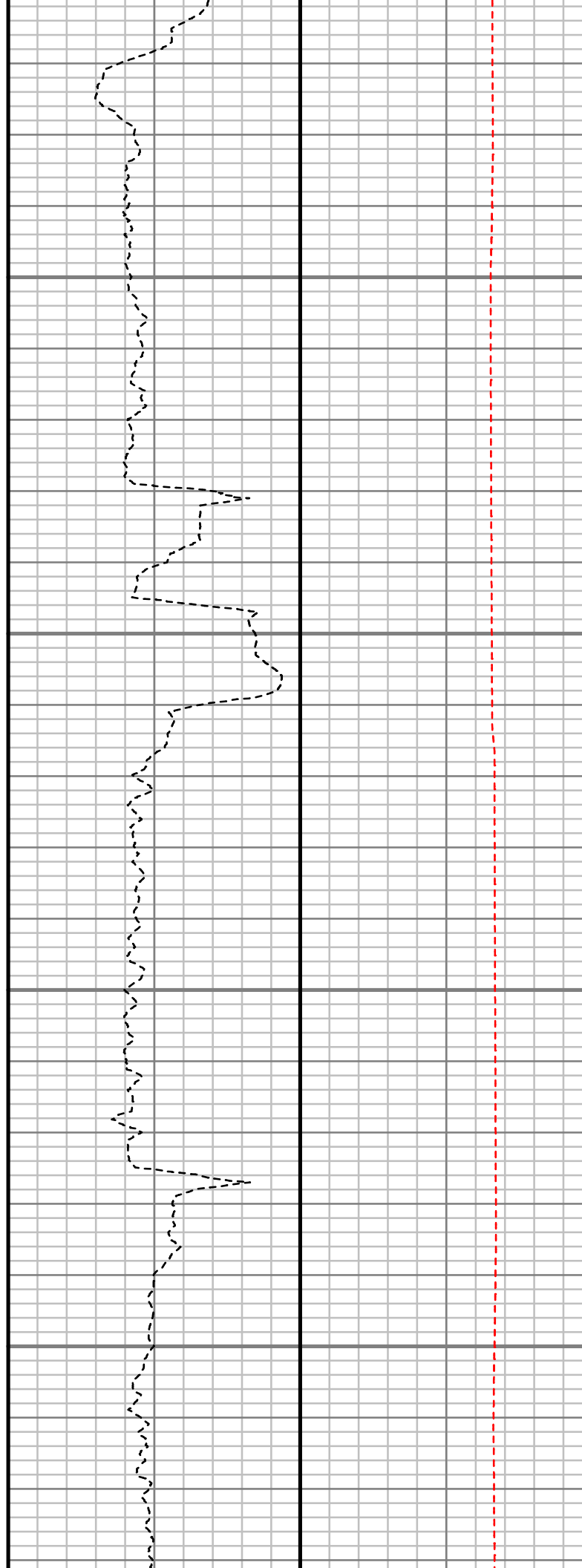
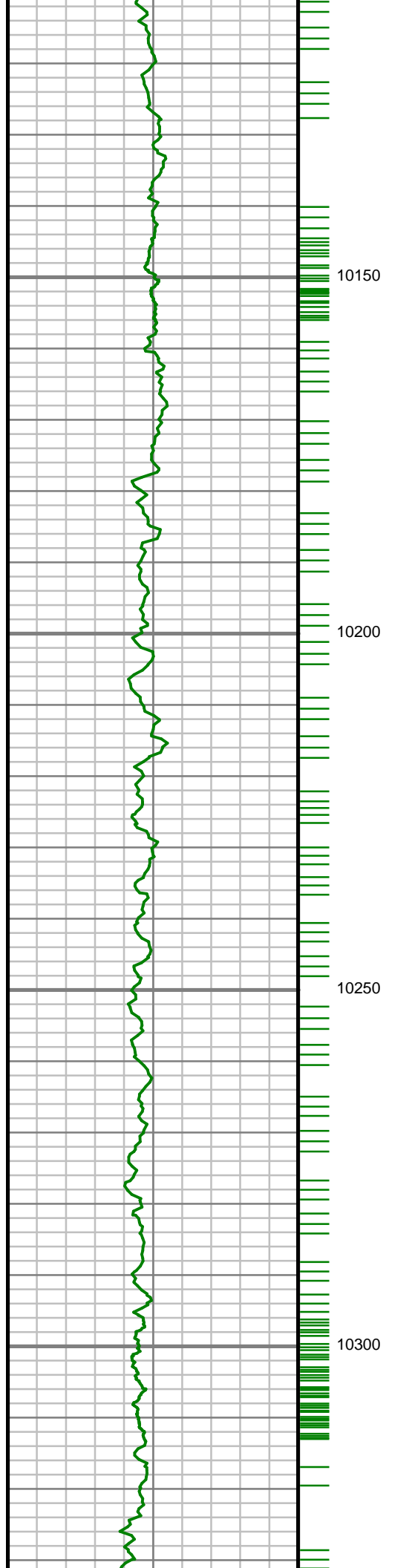


S: 87 MD: 9832.00 ft
Inc: 91.21 deg Az:
357.67 deg TVD:
7594.43 ft

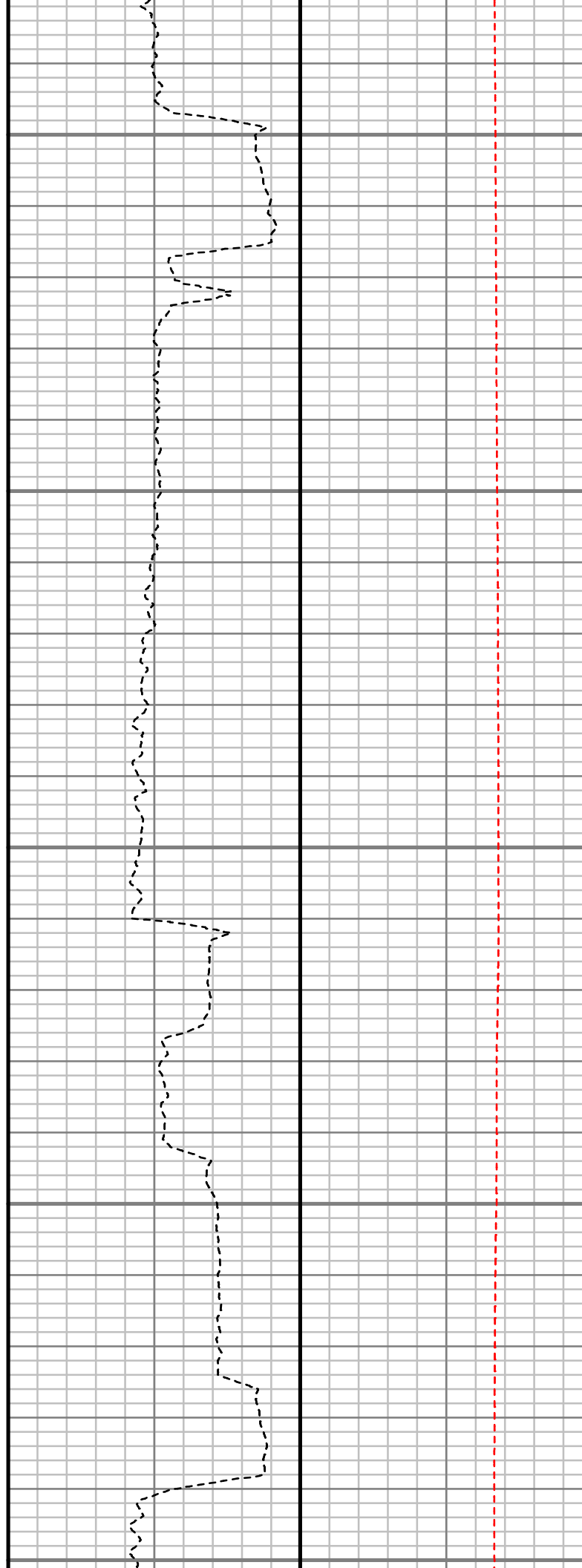
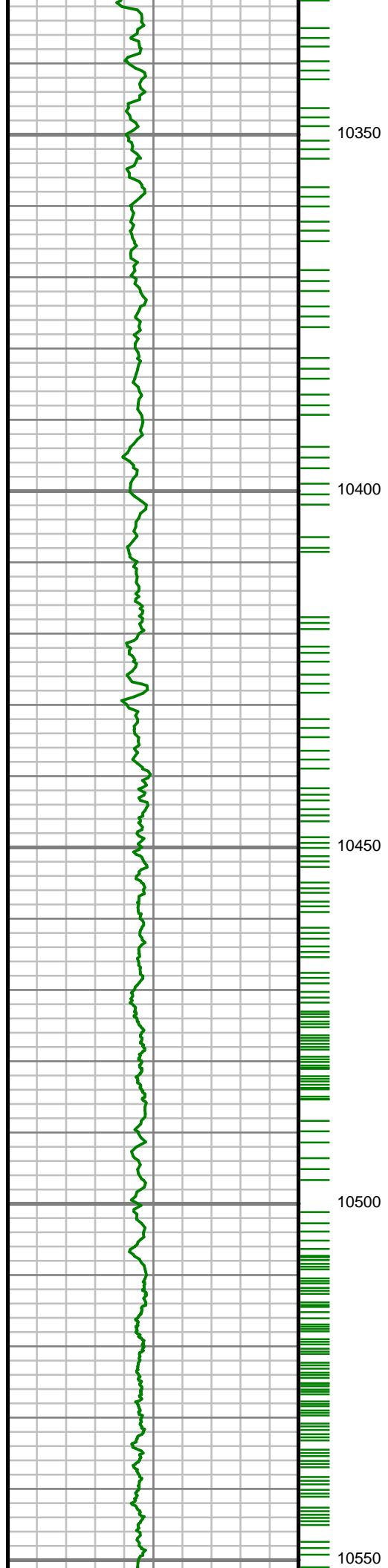


S: 88 MD: 9926.00 ft
Inc: 90.87 deg Az:
359.32 deg TVD:
7592.72 ft

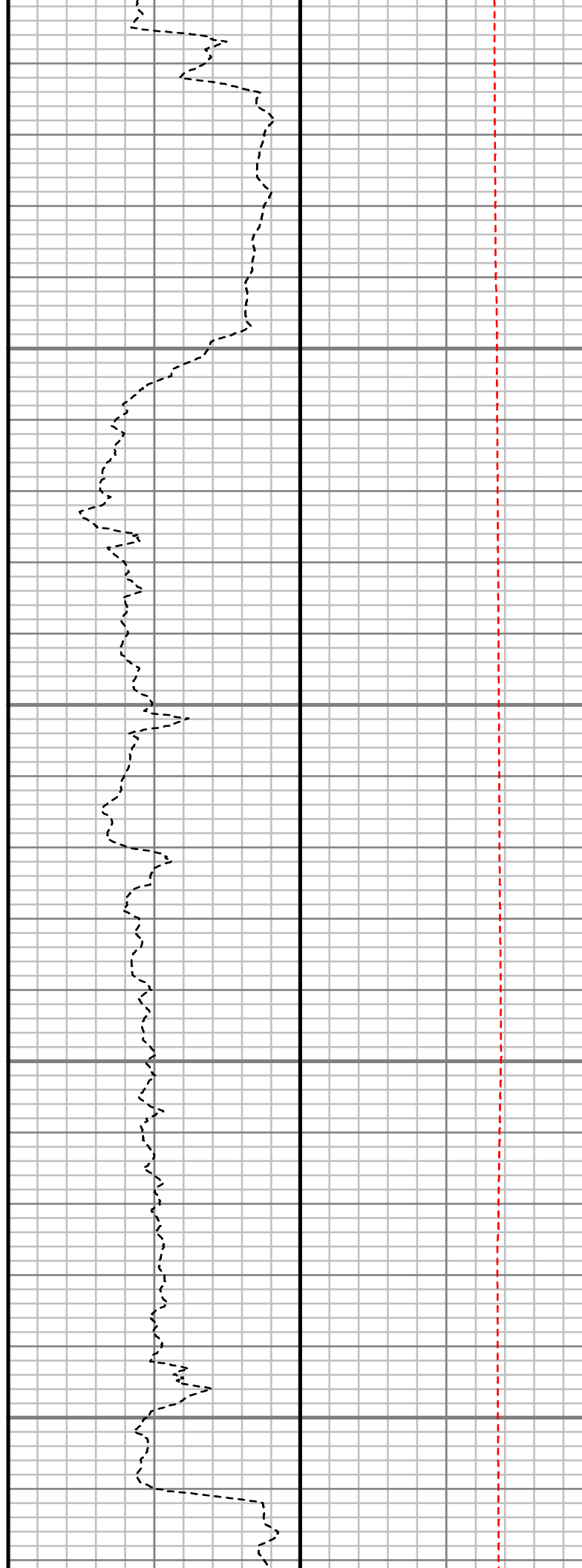
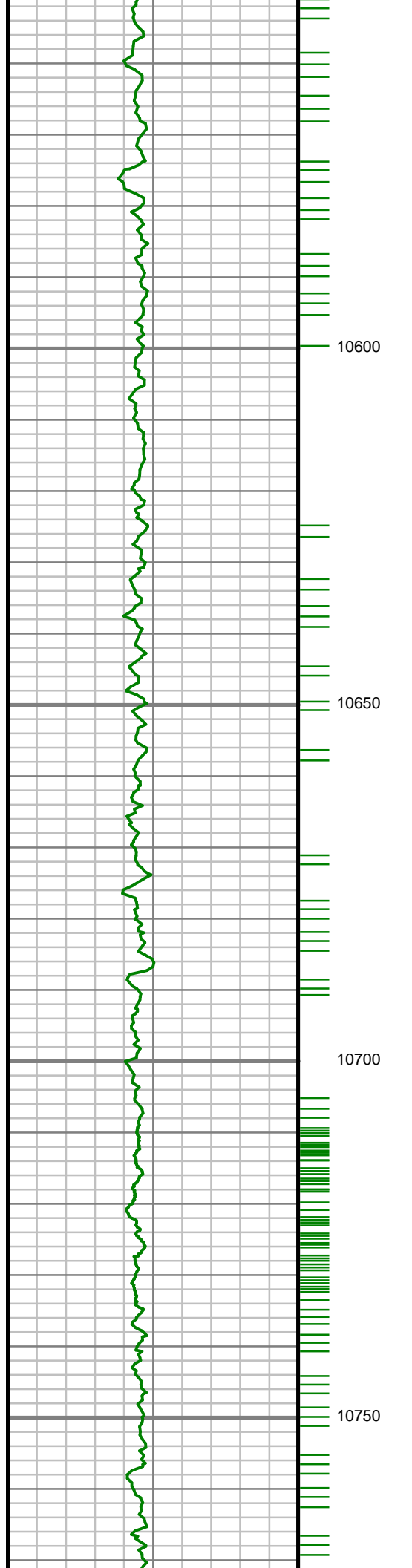
S: 89 MD: 10020.00 ft
Inc: 91.41 deg Az:
359.12 deg TVD:
7590.84 ft



S: 90 MD: 10114.00 ft Inc: 90.67 deg Az: 359.53 deg TVD: 7589.13 ft
S: 91 MD: 10209.00 ft Inc: 89.90 deg Az: 359.84 deg TVD: 7588.66 ft
S: 92 MD: 10303.00 ft Inc: 90.88 deg Az: 359.89 deg TVD: 7588.02 ft

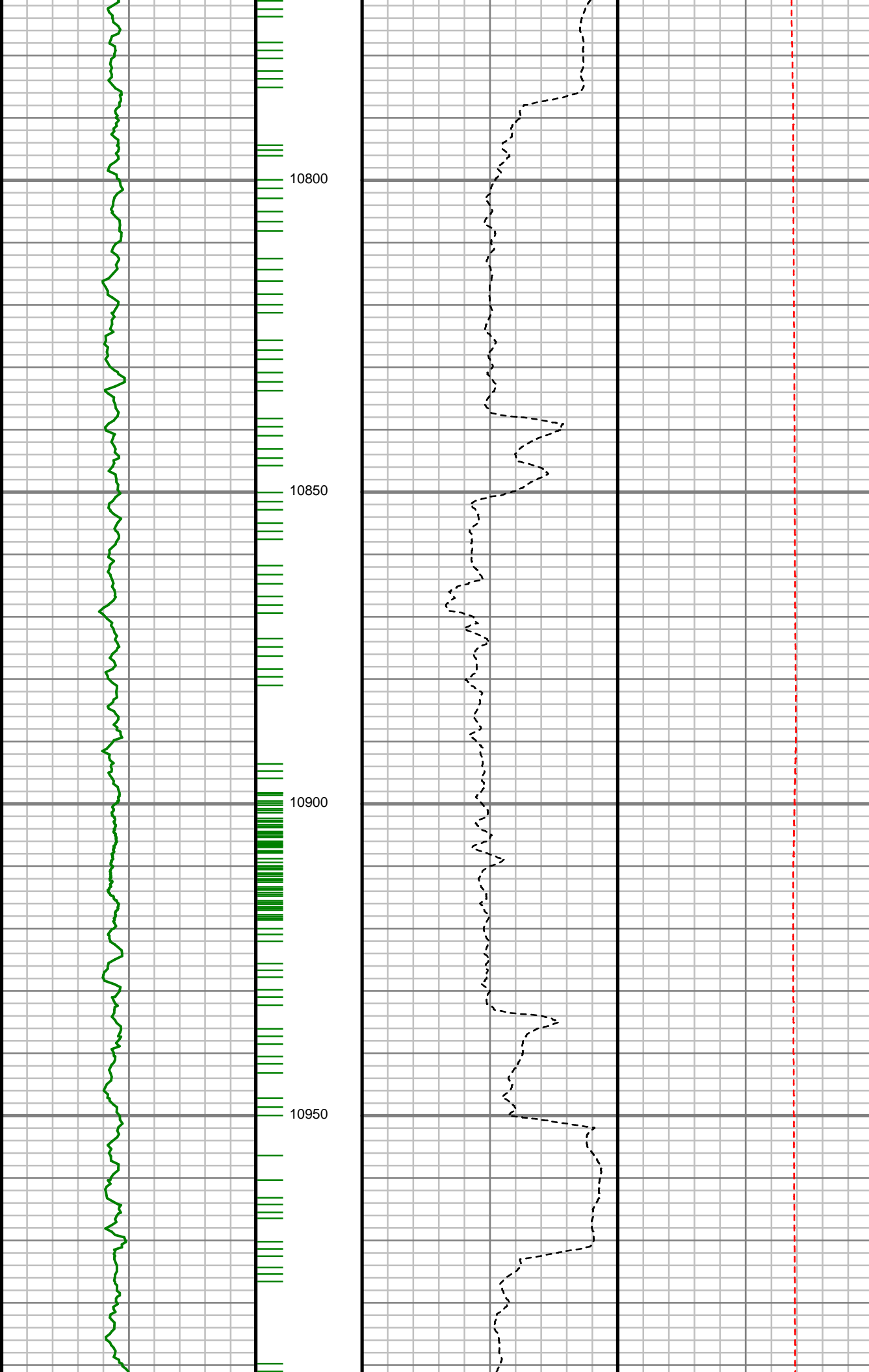


S: 93 MD: 10492.00 ft
Inc: 88.52 deg Az:
357.47 deg TVD:
7589.01 ft

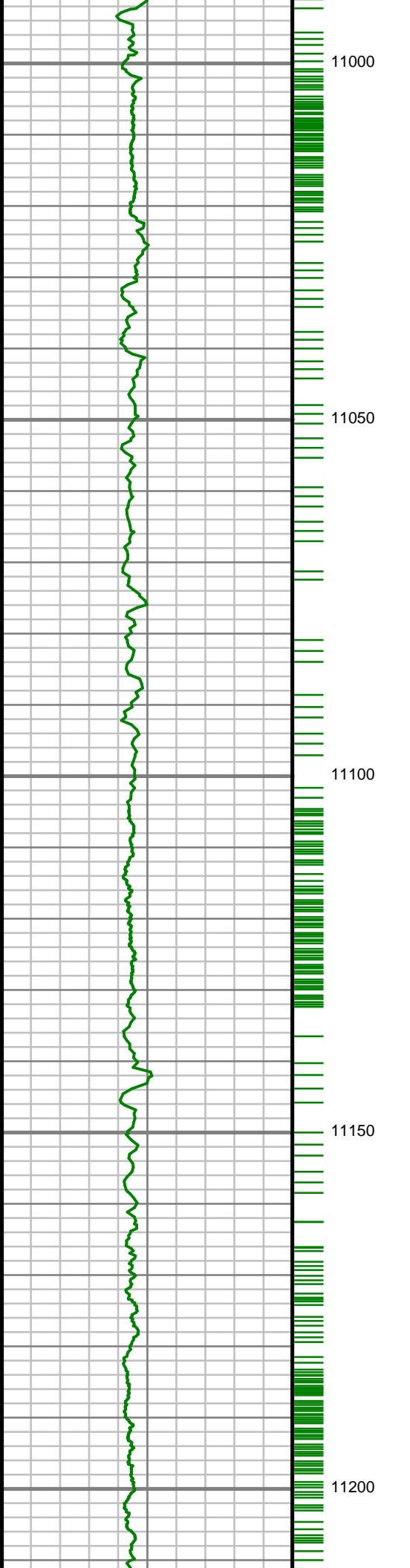


S: 94 MD: 10681.00 ft
Inc: 89.73 deg Az: 0.80
deg TVD: 7591.89 ft

S: 95 MD: 10775.00 ft
Inc: 90.03 deg Az: 1.68
deg TVD: 7592.09 ft

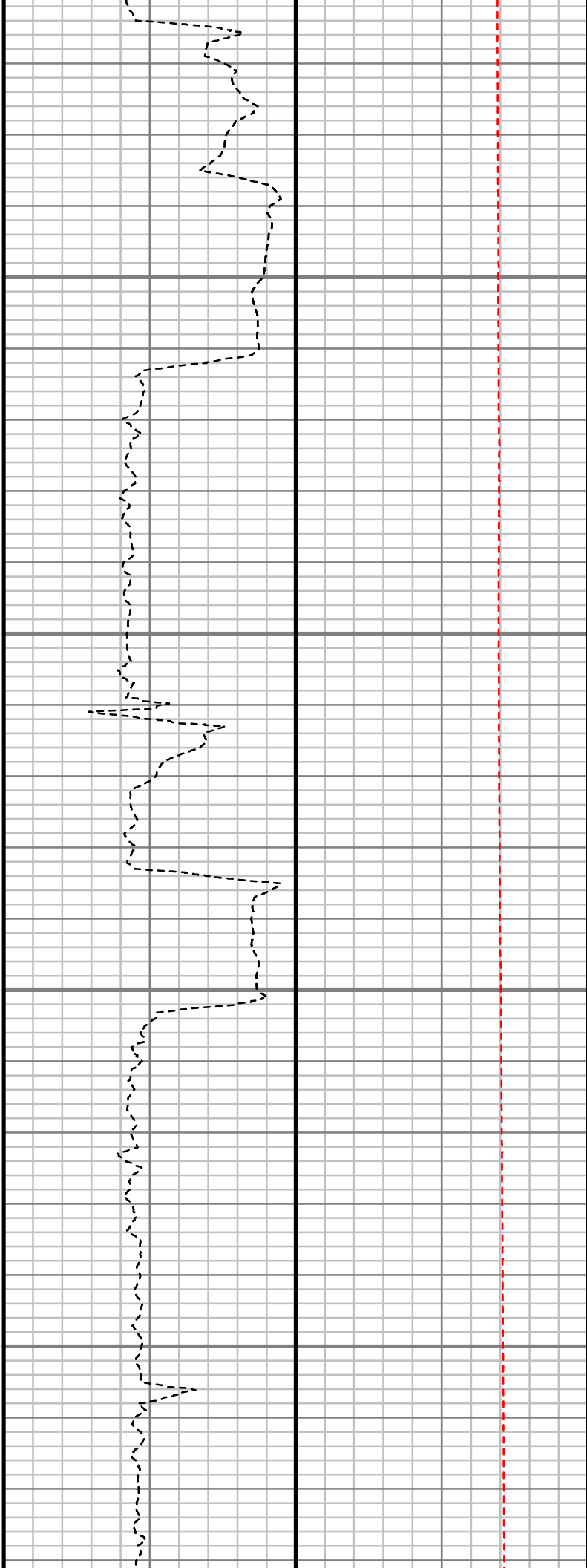
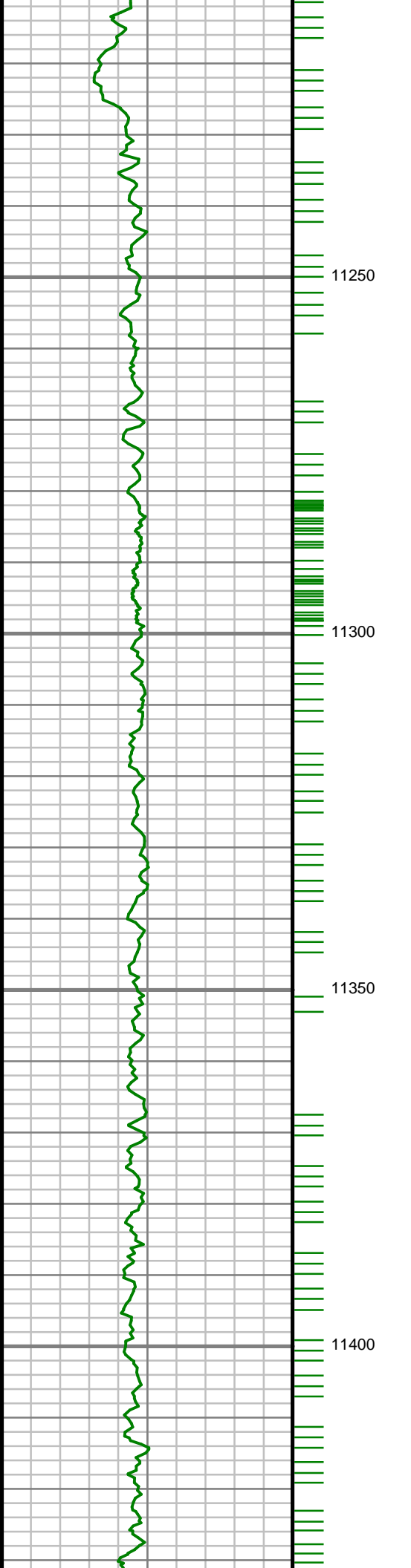


S: 96 MD: 10964.00 ft
Inc: 90.07 deg Az: 0.77
deg TVD: 7591.92 ft



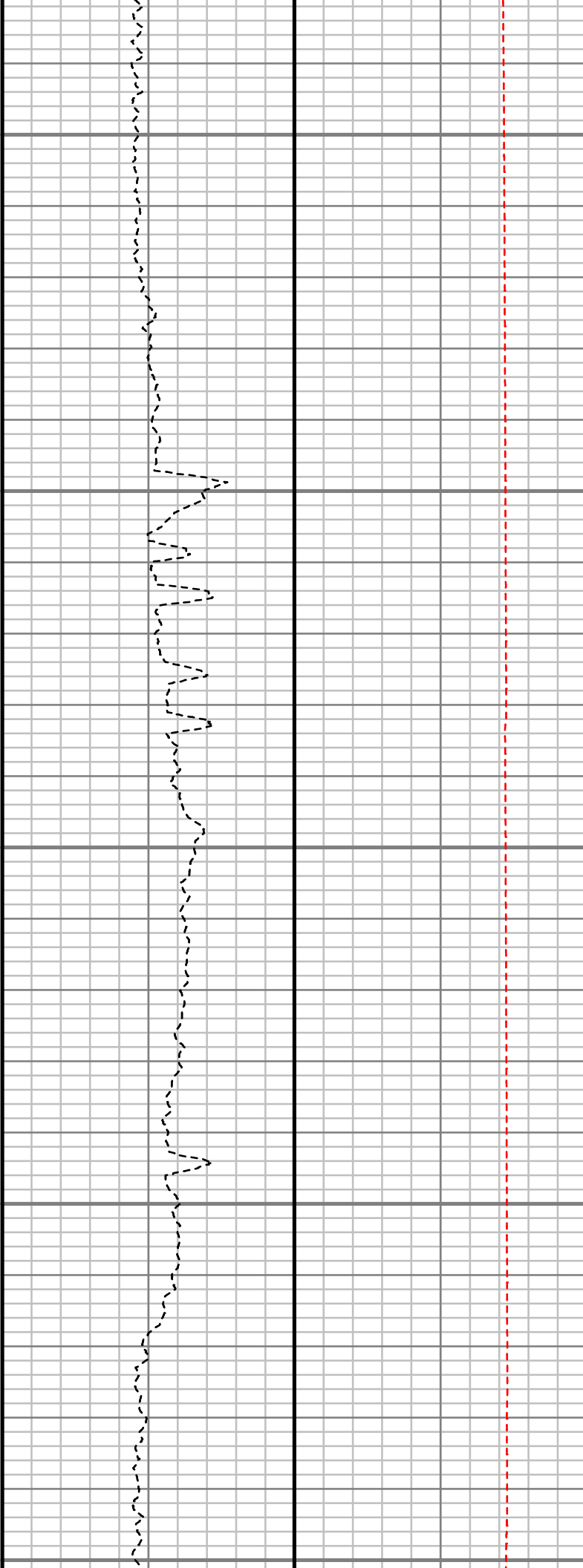
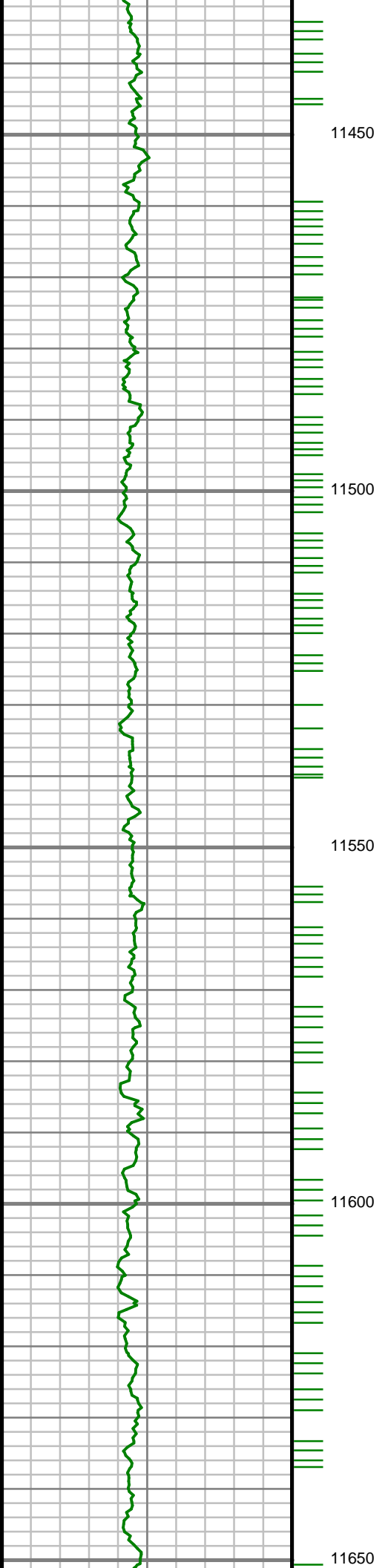
S: 97 MD: 11058.00 ft
Inc: 90.27 deg Az: 0.35
deg TVD: 7591.64 ft

S: 98 MD: 11185.00 ft
Inc: 90.30 deg Az: 0.18
deg TVD: 7591.01 ft



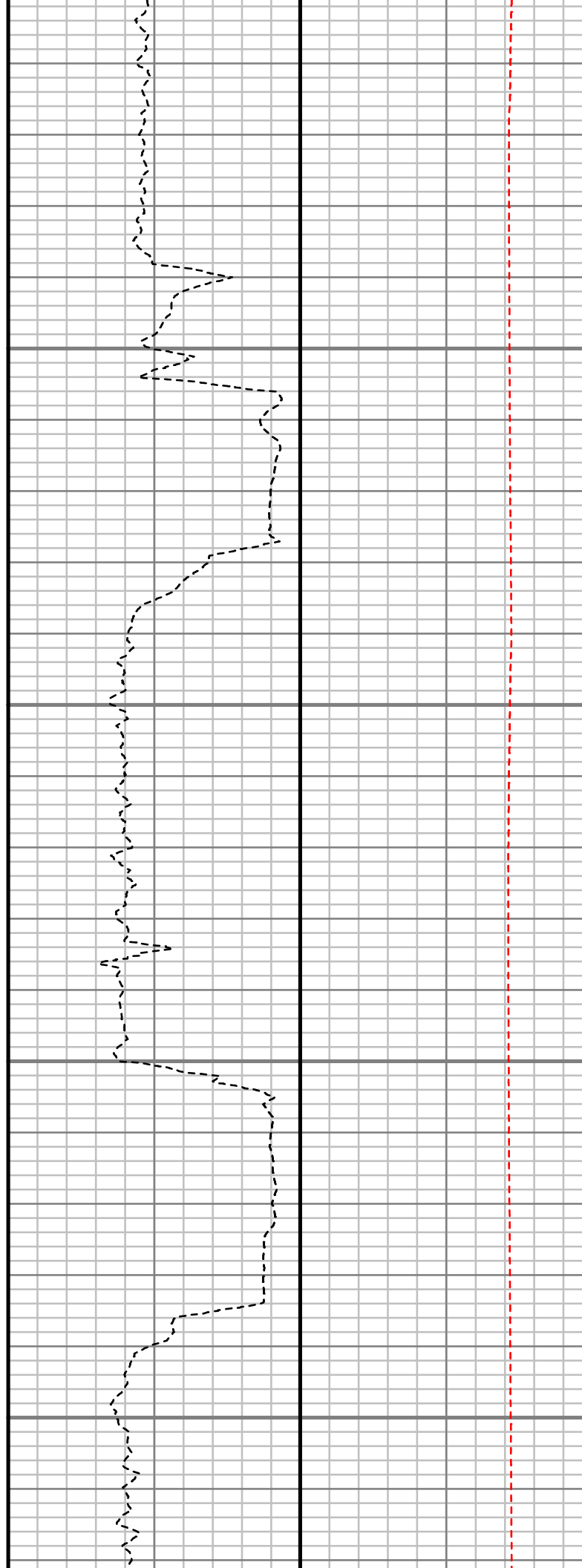
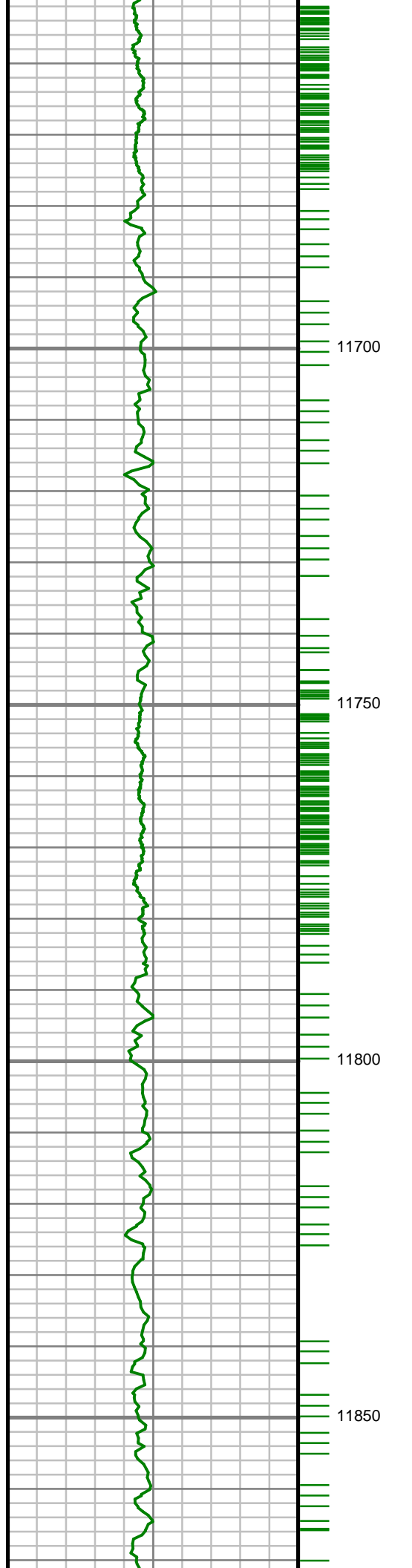
S: 99 MD: 11247.00 ft
Inc: 88.79 deg Az: 0.17
deg TVD: 7591.50 ft

S: 100 MD: 11341.00 ft
Inc: 89.80 deg Az: 0.89
deg TVD: 7592.66 ft



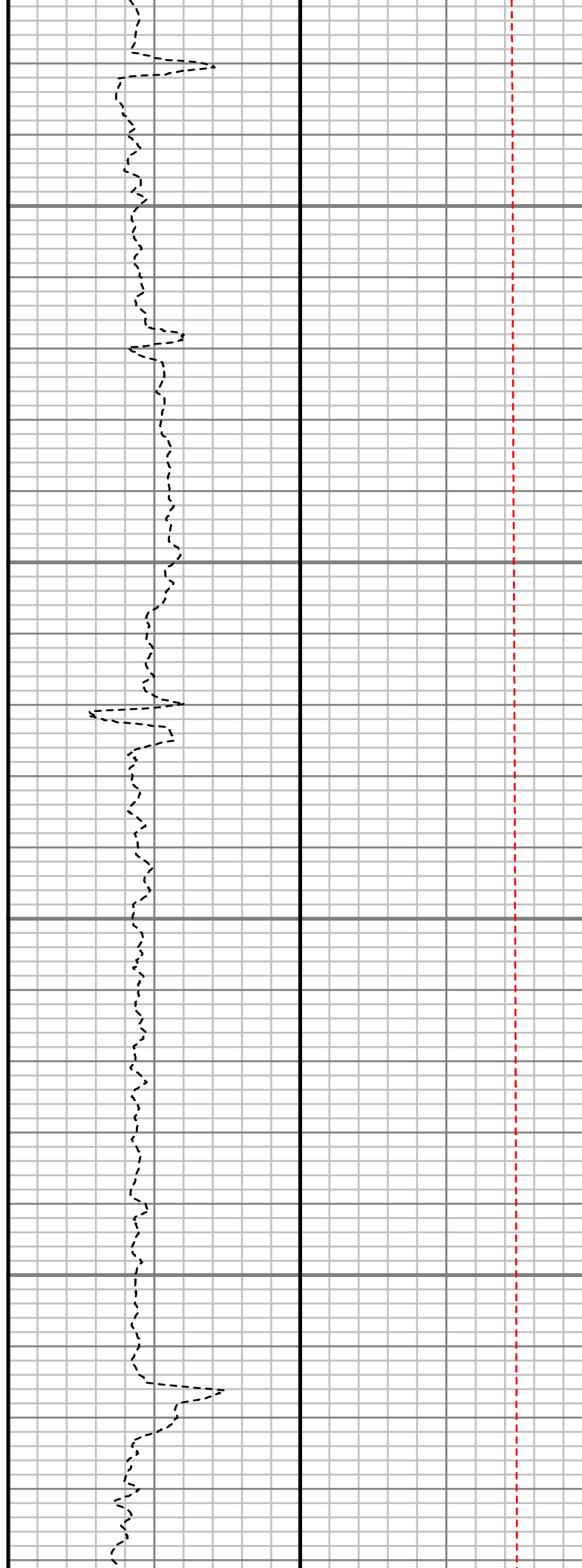
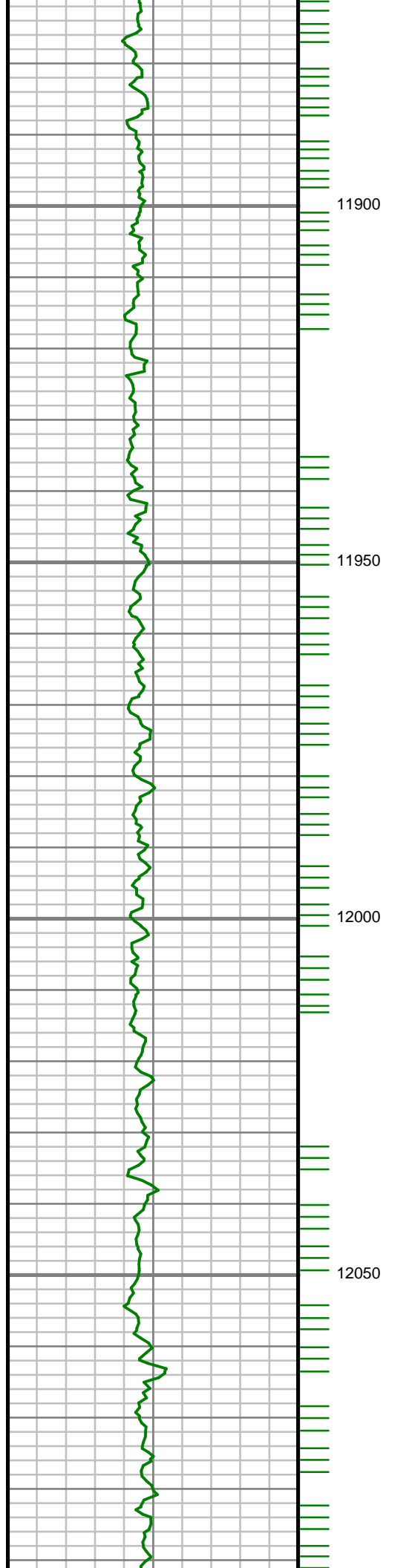
S: 101 MD: 11435.00 ft
Inc: 90.50 deg Az: 1.07
deg TVD: 7592.41 ft

S: 102 MD: 11529.00 ft
Inc: 90.13 deg Az: 0.01
deg TVD: 7591.89 ft

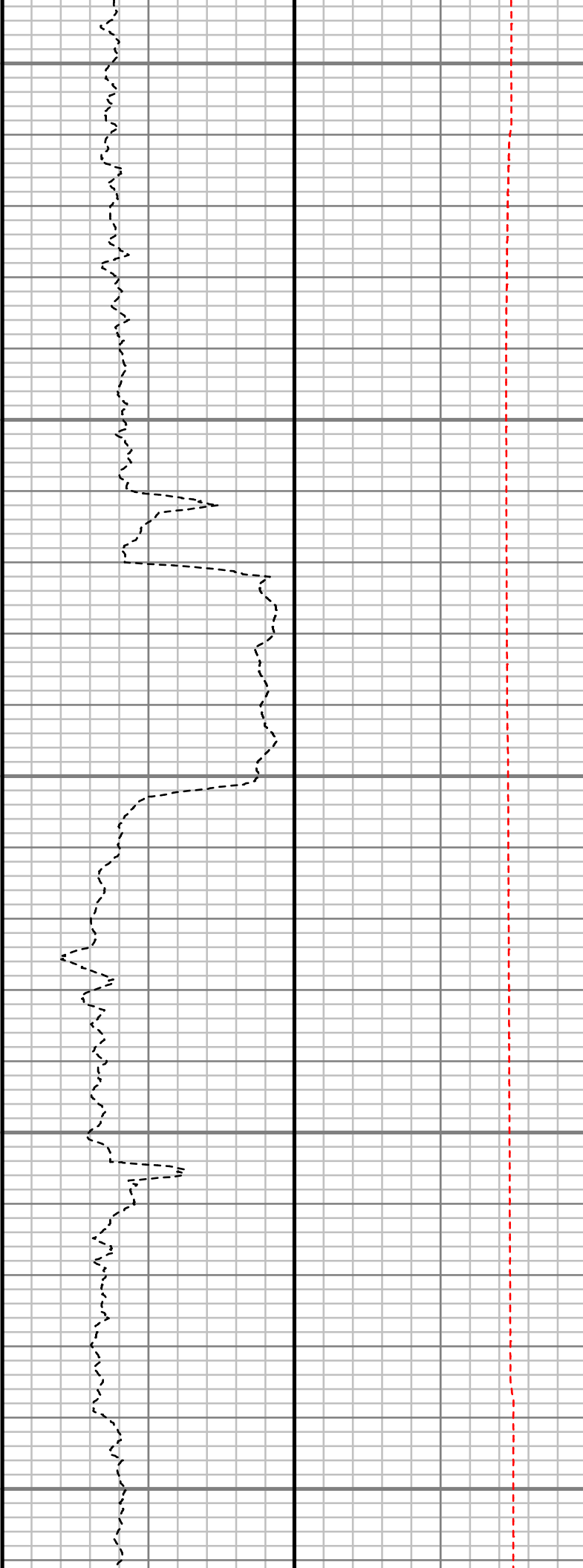
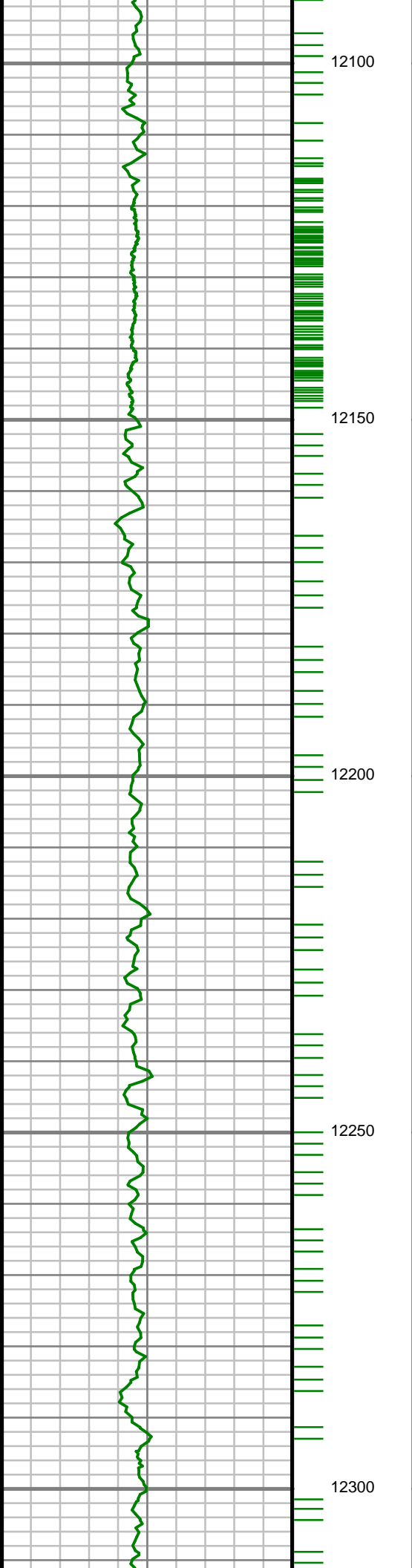


S: 103 MD: 11718.00 ft
Inc: 89.39 deg Az:
359.25 deg TVD:
7592.66 ft

S: 104 MD: 11813.00 ft
Inc: 91.01 deg Az: 0.70
deg TVD: 7592.33 ft



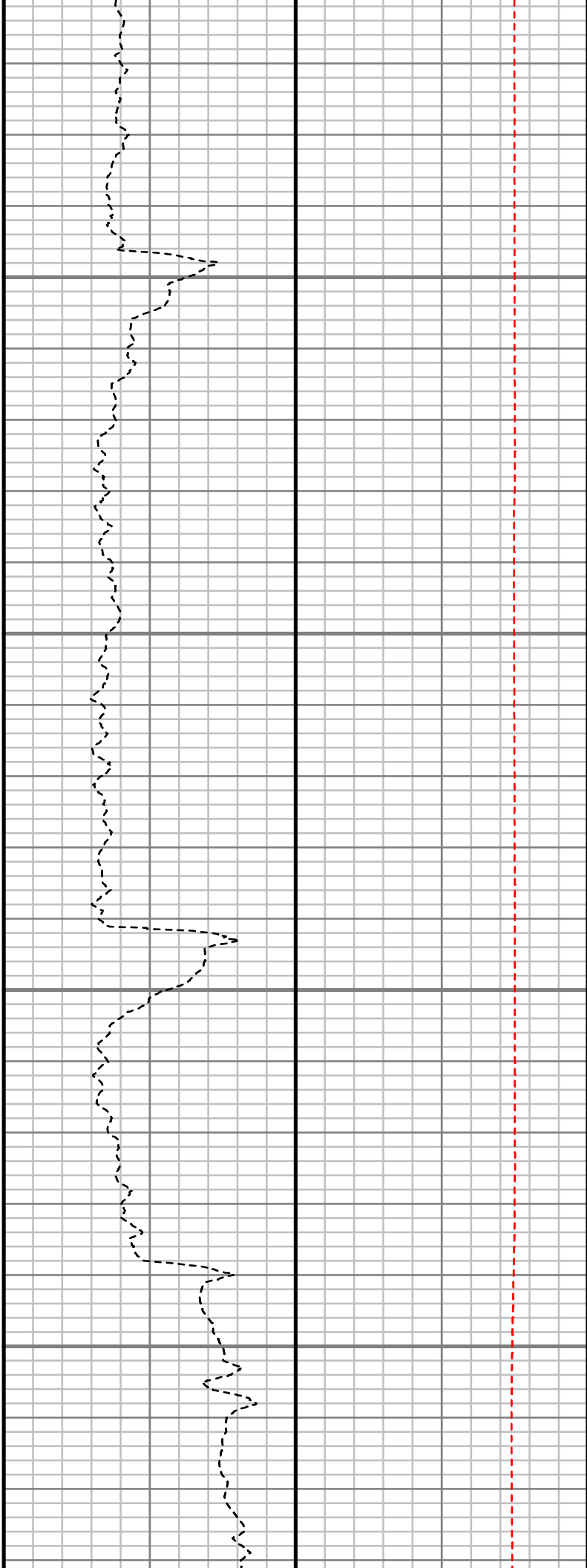
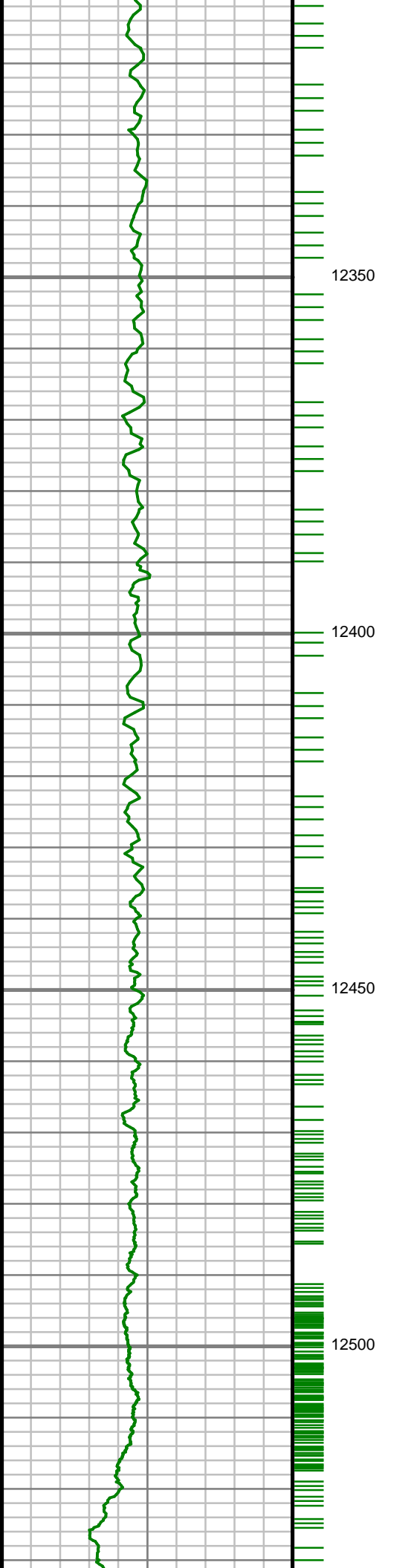
S: 105 MD: 11907.00 ft
Inc: 91.18 deg Az: 0.83
deg TVD: 7590.54 ft



S: 106 MD: 12096.00 ft
Inc: 88.96 deg Az:
357.58 deg TVD:
7590.31 ft

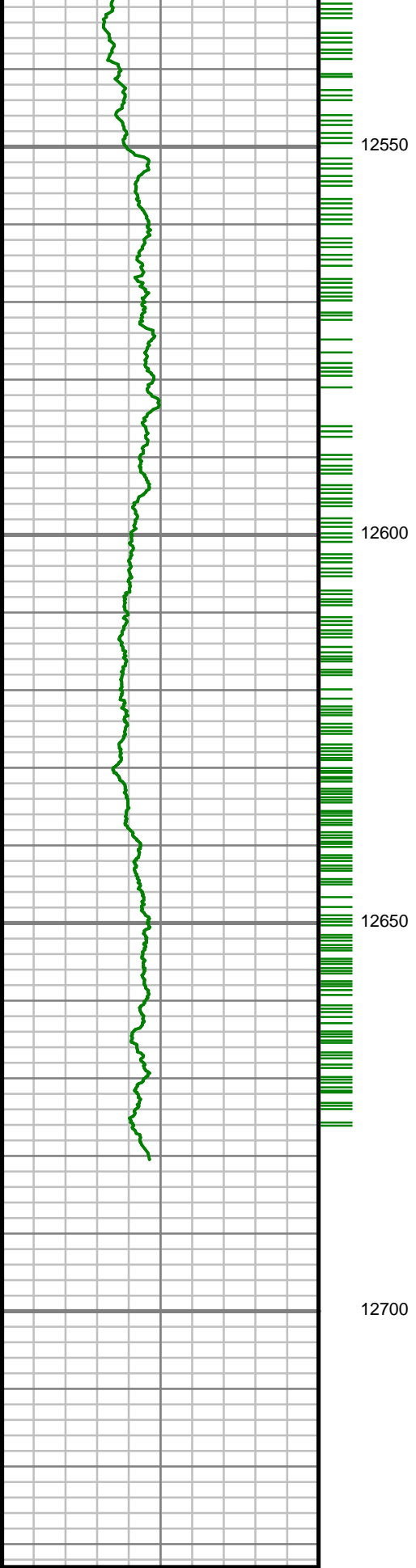
S: 107 MD: 12190.00 ft
Inc: 90.57 deg Az:
358.42 deg TVD:
7590.70 ft

S: 108 MD: 12284.00 ft
Inc: 90.27 deg Az:
358.93 deg TVD:
7590.01 ft



S: 109 MD: 12379.00 ft
Inc: 91.21 deg Az:
357.08 deg TVD:
7588.79 ft

S: 110 MD: 12473.00 ft
Inc: 91.64 deg Az:
356.35 deg TVD:
7586.45 ft



Gamma Ray (GR)
Unit = aapi
0 150

MEASURED DEPTH
1:240 (ft)



Rate of Penetration (ROP)
Unit = ft/hr
800 0

Tool Temperature (T-TEMP)
Unit = °F
0 300

Comments

MWD Survey Report

Well Location	SPOTTED 35-23HZ PAD
Well Name	SPOTTED 4C-23HZ
Survey Date	06/17/14
Latitude	40°7'1.758"N
Longitude	104°51'52.009"W
Btotal	52749, 52811 nT
Dip	66.77, 66.80 deg
Magnetic Declination	8.62, 8.65 deg
North Reference	True North
Grid Correction	None
Depth Reference	RKB (25.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 0.00Azim (deg)
Operator(s)	B. GREER, M. SHARKER

Well Notes

SURVEYS FROM 0 FT. TO 1248 FT. WERE ACQUIRED BY MS GYRO MWD.

SURVEYS FROM 1248 FT. TO 12473 FT. WERE ACQUIRED BY SCIENTIFIC DRILLING INTERNATIONAL MWD.

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	Invalid
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	25.00
125.00	0.17	300.34	125.00	0.07	0.07	-0.13	0.17	100.00
225.00	0.38	343.11	225.00	0.47	0.47	-0.35	0.28	100.00
325.00	0.54	309.56	325.00	1.08	1.08	-0.81	0.31	100.00
425.00	0.39	288.35	424.99	1.49	1.49	-1.50	0.23	100.00
525.00	0.45	194.36	524.99	1.22	1.22	-1.92	0.62	100.00
625.00	0.62	155.96	624.99	0.34	0.34	-1.80	0.39	100.00
725.00	0.38	121.53	724.98	-0.32	-0.32	-1.29	0.37	100.00
825.00	0.13	61.99	824.98	-0.44	-0.44	-0.91	0.33	100.00
925.00	0.25	279.63	924.98	-0.35	-0.35	-1.02	0.36	100.00
1025.00	0.49	224.89	1024.98	-0.62	-0.62	-1.54	0.40	100.00
1125.00	0.27	173.11	1124.98	-1.16	-1.16	-1.82	0.39	100.00
1225.00	0.14	122.90	1224.98	-1.46	-1.46	-1.68	0.21	100.00
1378.00	0.40	234.93	1377.98	-1.87	-1.87	-1.97	0.31	153.00
1560.00	5.13	202.79	1559.72	-9.74	-9.74	-5.65	2.63	182.00
1744.00	8.59	198.28	1742.37	-30.38	-30.38	-13.15	1.90	184.00
1927.00	8.97	181.64	1923.26	-57.62	-57.62	-17.84	1.40	183.00
2018.00	9.43	182.49	2013.09	-72.15	-72.15	-18.37	0.53	91.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Course Length ft
2200.00	11.70	181.91	2191.99	-105.50	-105.50	-19.63	1.25	182.00
2292.00	12.99	186.14	2281.86	-125.11	-125.11	-21.05	1.71	92.00
2383.00	13.95	189.36	2370.36	-146.10	-146.10	-23.93	1.34	91.00
2475.00	14.66	193.23	2459.51	-168.38	-168.38	-28.40	1.29	92.00
2657.00	14.86	191.05	2635.50	-213.70	-213.70	-38.14	0.33	182.00
2749.00	16.76	192.01	2724.02	-238.25	-238.25	-43.16	2.09	92.00
2841.00	14.84	190.07	2812.54	-262.83	-262.83	-47.98	2.17	92.00
3212.00	14.37	190.42	3171.55	-354.89	-354.89	-64.62	0.13	371.00
3495.00	7.96	202.05	3449.08	-407.64	-407.64	-78.34	2.39	283.00
3589.00	5.70	203.45	3542.41	-417.95	-417.95	-82.64	2.41	94.00
3872.00	3.35	246.92	3824.59	-434.09	-434.09	-95.84	1.41	283.00
3967.00	1.76	222.48	3919.49	-436.25	-436.25	-99.37	1.99	95.00
4061.00	0.88	189.16	4013.47	-438.03	-438.03	-100.46	1.20	94.00
4155.00	0.55	154.19	4107.46	-439.15	-439.15	-100.38	0.57	94.00
4249.00	0.50	176.55	4201.45	-439.96	-439.96	-100.16	0.22	94.00
4532.00	1.65	80.57	4484.41	-440.51	-440.51	-96.06	0.63	283.00
4626.00	1.60	73.69	4578.38	-439.92	-439.92	-93.47	0.22	94.00
4815.00	2.28	61.26	4767.27	-437.38	-437.38	-87.64	0.42	189.00

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Course Length ft
4910.00	1.68	46.64	4862.21	-435.51	-435.51	-84.97	0.82	95.00
5004.00	0.68	8.92	4956.19	-434.01	-434.01	-83.89	1.29	94.00
5193.00	1.04	323.92	5145.17	-431.53	-431.53	-84.72	0.39	189.00
5569.00	0.67	227.70	5521.14	-430.26	-430.26	-88.35	0.34	376.00
5758.00	1.06	258.60	5710.12	-431.35	-431.35	-90.89	0.31	189.00
5853.00	0.94	274.27	5805.11	-431.47	-431.47	-92.53	0.31	95.00
5947.00	0.72	284.38	5899.10	-431.27	-431.27	-93.87	0.28	94.00
6041.00	1.04	297.56	5993.09	-430.72	-430.72	-95.19	0.40	94.00
6136.00	1.31	307.97	6088.07	-429.66	-429.66	-96.81	0.36	95.00
6230.00	1.04	325.31	6182.05	-428.29	-428.29	-98.15	0.47	94.00
6607.00	1.08	4.91	6558.99	-421.92	-421.92	-99.80	0.19	377.00
6701.00	1.15	356.86	6652.97	-420.09	-420.09	-99.77	0.18	94.00
6890.00	0.61	330.96	6841.95	-417.32	-417.32	-100.36	0.35	189.00
6937.00	2.75	10.67	6888.93	-416.00	-416.00	-100.28	4.92	47.00
6984.00	7.58	2.12	6935.72	-411.79	-411.79	-99.95	10.39	47.00
7031.00	10.77	357.18	6982.11	-404.30	-404.30	-100.05	6.98	47.00
7079.00	14.53	354.27	7028.94	-393.83	-393.83	-100.88	7.95	48.00
7126.00	17.16	355.36	7074.15	-381.05	-381.05	-102.03	5.62	47.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
7173.00	19.11	354.30	7118.82	-366.48	-366.48	-103.35	4.22	47.00
7220.00	22.26	353.27	7162.78	-349.98	-349.98	-105.16	6.75	47.00
7267.00	23.22	353.21	7206.13	-331.94	-331.94	-107.30	2.03	47.00
7314.00	26.14	351.14	7248.83	-312.51	-312.51	-109.99	6.49	47.00
7361.00	31.75	349.25	7289.94	-290.11	-290.11	-113.89	12.09	47.00
7408.00	37.22	349.67	7328.67	-263.96	-263.96	-118.75	11.65	47.00
7456.00	42.82	353.46	7365.42	-233.44	-233.44	-123.22	12.72	48.00
7503.00	47.57	356.86	7398.54	-200.23	-200.23	-125.99	11.34	47.00
7550.00	51.23	357.51	7429.12	-164.59	-164.59	-127.74	7.85	47.00
7597.00	54.49	358.47	7457.49	-127.15	-127.15	-129.04	7.12	47.00
7645.00	59.41	2.34	7483.67	-86.95	-86.95	-128.72	12.27	48.00
7692.00	63.27	3.96	7506.21	-45.78	-45.78	-126.45	8.75	47.00
7739.00	66.50	5.28	7526.16	-3.37	-3.37	-123.01	7.34	47.00
7786.00	69.54	5.64	7543.74	40.01	40.01	-118.86	6.51	47.00
7833.00	72.39	5.91	7559.07	84.21	84.21	-114.39	6.09	47.00
7880.00	75.34	5.31	7572.13	129.14	129.14	-109.97	6.40	47.00
7927.00	80.16	4.70	7582.10	174.88	174.88	-105.97	10.32	47.00
7958.00	83.65	5.15	7586.46	205.45	205.45	-103.34	11.35	31.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
8039.00	86.68	4.21	7593.29	285.89	285.89	-96.76	3.92	81.00
8134.00	89.02	5.21	7596.85	380.49	380.49	-88.96	2.69	95.00
8228.00	90.71	5.50	7597.07	474.08	474.08	-80.19	1.81	94.00
8323.00	91.51	3.79	7595.24	568.74	568.74	-72.50	1.98	95.00
8417.00	92.58	4.04	7591.88	662.46	662.46	-66.09	1.17	94.00
8511.00	92.42	2.84	7587.78	756.20	756.20	-60.45	1.29	94.00
8700.00	89.87	1.16	7584.01	945.03	945.03	-53.87	1.62	189.00
8889.00	88.05	359.73	7587.44	1133.98	1133.98	-52.42	1.22	189.00
9077.00	89.39	358.93	7591.63	1321.91	1321.91	-54.63	0.83	188.00
9171.00	87.11	356.23	7594.50	1415.77	1415.77	-58.59	3.76	94.00
9360.00	87.41	354.36	7603.54	1603.91	1603.91	-74.06	1.00	189.00
9437.00	89.02	354.79	7605.93	1680.53	1680.53	-81.34	2.16	77.00
9549.00	91.85	356.58	7605.08	1792.19	1792.19	-89.77	2.98	112.00
9643.00	92.89	356.46	7601.19	1885.93	1885.93	-95.48	1.12	94.00
9832.00	91.21	357.67	7594.43	2074.55	2074.55	-105.15	1.10	189.00
9926.00	90.87	359.32	7592.72	2168.50	2168.50	-107.62	1.79	94.00
10020.00	91.41	359.12	7590.84	2262.48	2262.48	-108.90	0.61	94.00
10114.00	90.67	359.53	7589.13	2356.45	2356.45	-110.01	0.90	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
10209.00	89.90	359.84	7588.66	2451.45	2451.45	-110.53	0.88	95.00
10303.00	90.88	359.89	7588.02	2545.45	2545.45	-110.75	1.04	94.00
10492.00	88.52	357.47	7589.01	2734.37	2734.37	-115.11	1.79	189.00
10681.00	89.73	0.80	7591.89	2923.29	2923.29	-117.96	1.87	189.00
10775.00	90.03	1.68	7592.09	3017.27	3017.27	-115.93	0.99	94.00
10964.00	90.07	0.77	7591.92	3206.22	3206.22	-111.89	0.48	189.00
11058.00	90.27	0.35	7591.64	3300.22	3300.22	-110.96	0.50	94.00
11185.00	90.30	0.18	7591.01	3427.22	3427.22	-110.37	0.14	127.00
11247.00	88.79	0.17	7591.50	3489.21	3489.21	-110.18	2.43	62.00
11341.00	89.80	0.89	7592.66	3583.20	3583.20	-109.32	1.31	94.00
11435.00	90.50	1.07	7592.41	3677.18	3677.18	-107.71	0.78	94.00
11529.00	90.13	0.01	7591.89	3771.18	3771.18	-106.82	1.20	94.00
11718.00	89.39	359.25	7592.66	3960.17	3960.17	-108.06	0.56	189.00
11813.00	91.01	0.70	7592.33	4055.16	4055.16	-108.10	2.29	95.00
11907.00	91.18	0.83	7590.54	4149.14	4149.14	-106.85	0.23	94.00
12096.00	88.96	357.58	7590.31	4338.08	4338.08	-109.47	2.08	189.00
12190.00	90.57	358.42	7590.70	4432.02	4432.02	-112.75	1.93	94.00
12284.00	90.27	358.93	7590.01	4525.99	4525.99	-114.92	0.63	94.00

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	DLS	Course Length
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft
12379.00	91.21	357.08	7588.79	4620.92	4620.92	-118.22	2.18	95.00
12473.00	91.64	356.35	7586.45	4714.74	4714.74	-123.60	0.91	94.00

5" = 100' FEET MD